NAVAL POSTGRADUATE SCHOOL Monterey, California



THESIS

DESIGN OF A PERSISTENCE SERVER FOR THE RELATIONAL HYPERGRAPH MODEL

by

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13. ABSTRACT (maximum 200 words)

The fundamental purpose of this research is to develop an automated software evolution tool, CASES, for large and complex systems. CASES (Computer-Aided Software Evolution System) is based on the Relational Hypergraph model that is a formal model for describing software evolution processes. This model provides the preliminary mathematical definitions to support the development of CASES. There are five basic functions related to software evolution steps: step refinement, project evaluation, constraint management, personnel management, and step management. There are also five functions related to software evolution components: component management, component traceability, version control and configuration management, dependency management, and inference rule management. CASES is implemented by using Java JDK 1.1.7 and Swing 1.0.3 under the Visual Café version 3.0 environment. The primary contributions of this research include: (1) Providing an automated tool for software evolution; (2) Validating a software evolution model, the RH model; (3) Allowing reuse of software evolution components; (4) Describing the software evolution processes; (5) Automating the version control of software evolution objects; (6) Tracing the software evolution activities; and (7) Managing and controlling job scheduling and assignment.

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DESIGN OF A PERSISTENCE SERVER FOR THE RELATIONAL HYPERGRAPH MODEL

Hanh Cong Thi Le B.S., San Diego State University, 1997

Submitted in partial fulfillment of the requirements for the degree of

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ABSTRACT

The fundamental purpose of this research is to develop an automated software evolution tool, CASES, for large and complex systems. CASES (Computer-Aided Software Evolution System) is based on the Relational Hypergraph model that is a formal model for describing software evolution processes. This model provides the preliminary mathematical definitions to support the development of CASES. There are five basic functions related to software evolution steps: step refinement, project evaluation, constraint management, personnel management, and step management. There are also five functions related to software evolution components: component management, component traceability, version control and configuration management, dependency management, and inference rule management. CASES is implemented by using Java JDK 1.1.7 and Swing 1.0.3 under the Visual Café version 3.0 environment. The primary contributions of this research include: (1) Providing an automated tool for software evolution; (2) Validating a software evolution model, the RH model; (3) Allowing reuse of software evolution components; (4) Describing the software evolution processes; (5) Automating the version control of software evolution objects; (6) Tracing the software evolution activities; and (7) Managing and controlling job scheduling and assignment.

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I. INTRODUCTION

A software evolution tool, Computer-Aided Software Evolution System (CASES), has been designed and implemented for supporting the development of large and complicated software systems. Most automated tools similar to CASES, such as the INSERT system, created by CMU, and QSS DOORS, used by the U.S. Treasury [DATT99], have attempted to match the requirements of software evolution, but some essential problems of software evolution, like automated version control, component traceability, and job scheduling and assignment, are left unaddressed.

Roetzheim, [ROET98] stated that the United States has around 175,000 information projects to process, but that 31% of them are going to fail. Of these, 40% are canceled when it is recognized that their system design proves to be untenable. Another 33% are unfinished or are delayed as they run out of budget and time. Luqi [LUQI97] noted that formal methods can help industry, companies, and businesses improve these numbers. Many of the problems described in [ROET98] could be addressed by the integration of software evolution management and control, software evolution object reuse, and software evolution history tracing [HARN99f], which was the focus of this research.

The objective of this study was to design CASES. CASES can assist software evolution activities of software engineers and help them better control and manage the software evolution processes. In particular, CASES can provide a systematic and automatic environment for developing real-time embedded systems [HARN99d].

In order to accomplish this work, the following approaches were used: rapid prototyping [LUQI88a] [LUQI88b], formalization of software evolution objects [BADR94] [LIEB93] [SEIT98], and reuse of software objects [GOGU96] [HARN99a] [STEI91]. Rapid prototyping provides the best way to firm up the user's requirements. Formalization of software evolution objects provides the fundamental theorems of software evolution processes. The reuse of software objects enhances the reliability of software development.

CASES can provide automated assistance throughout software evolution processes and support the practical development of large complicated systems by physically distributed development teams. To describe and automate software evolution, the software evolution process is formalized using the Relational Hypergraph (RH) model. The RH model is an extension of the hypergraph model and evolutionary hypergraph model [HARN99b] [HARN99f] [LUQI97]. The RH model defines primary-input, secondary-input, and output dependencies among software evolution objects, and builds a multi-dimensional framework for software evolution processes [HARN99e].

The main functions of the RH model are to describe the software evolution objects and their dependencies, to formalize software evolution processes, and to construct the RH net for navigating software evolution objects.

CASES provides five functions related to the activities of software evolution: step refinement, project evaluation, constraint management, personnel management, and step management. CASES also provides five functions related to software evolution components: component management, component traceability, version control and configuration management, dependency management, and inference rule management.

CASES was built using object-oriented tools, Java JDK 1.1.7 and Swing 1.0.3 under the Visual Café version 3.0 environment [SYMA98]. CASES can interface to Microsoft Notepad, Microsoft Word, Microsoft Excel, and Netscape but also to a prototyping tool, Computer-Aided Prototyping System (CAPS) [LUQI88a]. CAPS is an easy to use, visual, and integrated tool that can be used to rapidly design real-time applications utilizing its prototype system description language (PSDL) editor, reusable software database, program generator, and real-time scheduler [BERZ97] [LUQI89] [LUQI93].

II. RELATIONAL HYPERGRAPH MODEL

The RH model used in CASES is an extension of the graph model [LUQI90], hypergraph model [BERG89] [GALL93], and evolutionary hypergraph model [HARN99a] [LUQI97].

A. HYPERGRAPH MODEL

The hypergraph model represents the evolution history and future plans for software development as a hypergraph [LUQI97].

Definition 1. (hypergraph) A (directed) hypergraph is a tuple H = (N, E, I, O) where

- 1. N is a set of nodes,
- 2. E is a set of hyperedges (edges),
- 3. $I: E \rightarrow 2^N$ is a function giving set of *inputs* of each hyperedge, and
- 4. $O: E \to 2^N$ is a function giving the set of *outputs* of each hyperedge.

This definition describes the bare structure of a hypergraph, where its nodes and hyperedges can be traced on paths of the hypergraph. Each path of the hypergraph represents an evolution history whose components, including nodes and hyperedges, can be traced.

B. EVOLUTIONARY HYPERGRAPH MODEL

The evolutionary hypergraph model, a kind of hypergraph, focuses on formalizing software evolution components and steps. Therefore, nodes and edges identify the software evolution components and steps respectively. The attributes of the components and steps must be recorded and labeled [LUQI97].

Definition 2. (Evolutionary Hypergraph) An evolutionary hypergraph is a labeled, directed, and acyclic hypergraph H = (N, E, I, O) together with label functions $L_N : N \to C$ and $L_E : E \to A$ such that the following assumptions are satisfied:

- 1. The elements of N represent unique identifiers for software evolution components
- 2. The elements of E represent unique identifiers for software evolution steps
- 3. The functions I and O give the inputs and outputs of each software evolution step, such that $O(e) \cap O(e') \neq \emptyset$ implies e = e'
- 4. The function L_N labels each node with component attributes from the set C, including the corresponding version of the software evolution component
- The function L_E labels each edge with attributes from the set A, including the current status of the software evolution step, such that $A = \{s, d\} \times A'$ (that is, each element of A has the form (s, a') or (d, a'), where $a' \in A'$.) and an edge labeled "s" is called a step and one labeled "d" is called a decomposition.

According to this definition, both components and steps can be refined into finer components and steps. In particular, the *minimal hypergraph* whose edge set has only one edge can also be refined into a finer hypergraph.

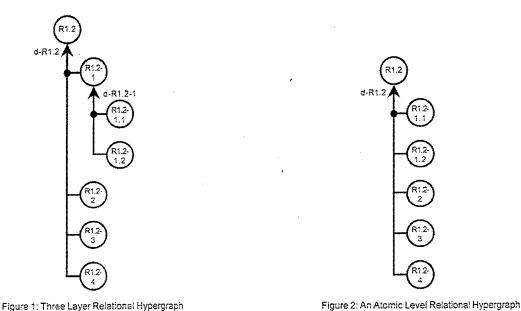
C. RELATIONAL HYPERGRAPH MODEL

A relational hypergraph [HARN99f] is an evolutionary hypergraph in which the dependency relationships between components and steps can have a hierarchy of specialized interpretations. These can be used to refine the software evolution process model.

For example, we can distinguish between primary-input-driven paths and secondary-input-driven paths. The input part to each hyperedge in a path could be a set of multiple input nodes containing many kinds of software evolution components. If there exist an input node and an output node to an evolutionary hyperedge, which are different versions of the same component, then the path from the input node via the hyperedge to the output node is called a *primary-input-driven path*. The hyperedge is called a *primary hyperedge*, and the relationship between the input node and the step is called a *primary_input dependency*. If there exists an input node and an output node to an evolutionary hyperedge, which are different components, then the path from the input node via the hyperedge to the output node is called a *secondary-input-driven path*. The hyperedge is called a *secondary hyperedge*, and the relationship between the input node and the step is called a *secondary_input dependency* [HARN99d].

Because input nodes to a step come from different entrances, a step in a relational hypergraph can be represented by an arrow with multiple tails, which are primary inputs

or secondary inputs as shown in Figure 6, or by combinational arrows shown in Figure 7 [HARN99f]. In order to describe traceability of the software evolution process, we use combinational arrows to illustrate paths of a step. The representation of combinational arrows points out a common output node and different paths (primary-input-driven paths or secondary-input-driven paths) of a step [HARN99d]. The structure of relational hypergraphs is an unlimited-depth hierarchy. In order to formalize the relationship between software evolution objects and software evolution tasks represented by steps, this research focuses on top-level and atomic-level relational hypergraphs. Some atomic-level objects are too big to be considered monolithic components, therefore, these objects must be decomposed. After they are decomposed, middle-level relational hypergraphs can be ignored because the software evolution objects in these levels are clusters of lower-level objects that represent temporary sets instead of representing the software evolution objects which can be carried out by stakeholders.



In Figure 1 and 2 [HARN99d], node *R1.2* is a top-level requirement that includes five atomic-level requirements *R1.2-1.1*, *R1.2-1.2*, *R1.2-2*, *R1.2-3*, and *R1.2-4*. Figure 1 shows a three-layer relational hypergraph whose node *R1.2-1* is a middle-level requirement. Figure 2 is an atomic level representation of Figure 1.

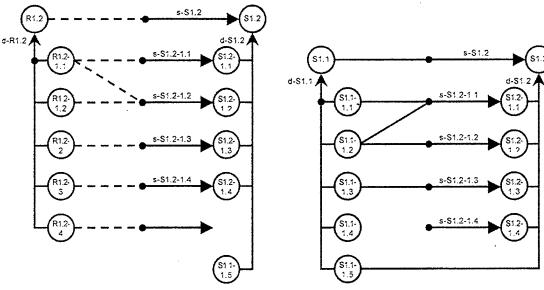


Figure 3: A Partial View of a Hypergraph(1)

Figure 4: A Partial View of a Hypergraph(2)

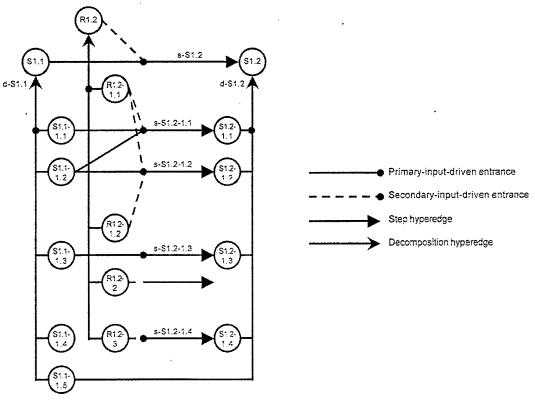
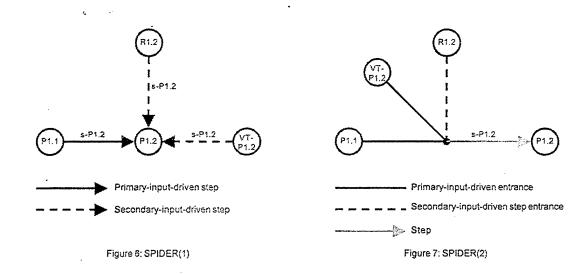


Figure 5: A Relational Hypergraph

Each input to a step s is individual and can be connected to others. For example, inputs R1.2 and S1.1 to the step s-S1.2 in Figure 3 and 4, respectively, are individual inputs and can be connected to each other as shown in Figure 5. Figures 3 and 4 are partial views of Figure 5. This feature can be applied to both top-level and atomic level steps [HARN99d].

A software evolution step with its input and output components forms a Step Processed In Different Entrance Relationship, (SPIDER) which simplifies the dependency complexity of the software evolution and helps to construct the relational hypergraph net, shown as Figure 6 and Figure 7. Each top-level, refined, and atomic level SPIDER is connected into a relational hypergraph net. An atomic level SPIDER is a minimal task unit that can be assigned to developers.



D. FORMALIZED SOFTWARE EVOLUTION PROCESS

According to the Schematic Model of the Analysis Process [BERZ97] modified from the IBİS (Issue-Based Information System) model [CONK88], the software evolution process has identified eight types of top-level steps: software prototype demo,

issue analysis, requirement analysis, specification design, module implementation, program integration, software product demo, and software product implementation. The software evolution process has also identified eight different types of top-level components: criticisms, issues, requirements, specifications, modules, software prototype programs, optimizations, and software product programs. Each top-level object can be decomposed into a set of atomic objects, either directly or indirectly. This formalization of the modified software evolution process obtains user requirements via software prototype demo, issue analysis, and requirement analysis steps as shown in Figure 8 [HARN99f]. Typically, the software evolution processes can be changed according to development environment needs.

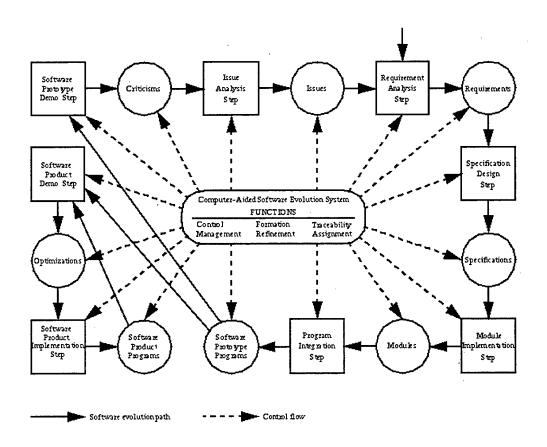


Figure 8: Software Evolution Processes with CASES

III. CASES DESIGN

CASES users include project managers or leaders, project organizers, project evaluators, system designers, and system analysts. CASES provides an interface to connect many kinds of application tools. In this research, CASES can link to Microsoft Notepad, Microsoft Word, Microsoft Excel, Netscape, and CAPS application. The system context diagram shown in Figure 9 describes the relationships between CASES and outside objects [HARN99f].

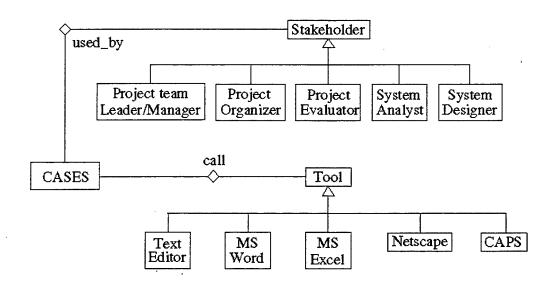


Figure 9: Context Diagram of CASES

There are five fundamental functions in CASES: project schema management, automated version control, SPIDER formation and tracing, tools, and job scheduling and management [EVAN97]. In project schema management, CASES helps users to propose software development processes and to determine related software evolution steps, components, and dependencies. CASES can automatically create new variant and version numbers for steps in a specified software evolution process. This research also

designed the software evolution history splitting and merging for switching variant paths of software evolution history. In the SPIDER formation and tracing, CASES users can edit, decompose, and trace SPIDERs. We also provide functions to record step and component contents. CASES users navigate related SPIDERs backwards or forwards without any limitations and can view the content of a step and component. CASES has five connections to communicate with outside software packages. Beside the connections, CASES has a function to manage personnel data. Finally, CASES can assign and schedule jobs for a person in the personnel database of the *stakeholder* directory.

CASES was built using the Visual Café version 3.0 environment, and it includes Java Development Kit (JDK) 1.1.7 and Swing 1.0.3 in the Visual Café library, where Swing classes are intended to make Graphical User Interfaces (GUIs). CASES is platform independent, which can run under Unix, Windows NT, or Windows 95. The only requirement needed to run CASES is to install JDK1.1.7 and Swing1.0.3 in the system.

A. ARCHITECTURE OVERVIEW

CASES uses the file structure of the Java system to save and to retrieve data. CASES creates objects and saves them in files with the benefit of getting whole objects. All objects saved in files are serialized objects since the serialized object is an instant file format that works for any application[FLAN97].

1. The CASES Package

CASES is structured as one package with thirty-five Java files. Most files in this package are reusable through their class' construction and launched by the *CasesFrame.java* file. In the CASES design, files are reusable to avoid the necessity of creating multiple files for a similar purpose. This design requires less hardware space and memory to execute and will therfore run more quickly and efficiently than if files were not reusable.

The use of global variables saves time in running CASES. The file CasesTitle.java is the only file which stores all the global variables for CASES and all titles for the whole system. This makes it simple to change or update titles, filenames, numbers, lists, or locations. Most of the Java files in this package implement CasesTitle.java. To change a title or directory, one only needs to go to CasesTitle.java and modify the directory path from there.

Interface classes require another file for implementation and those functions must be included in an implemented class. Programmers need only observe the code in CASES interface classes to know its content and also what kind of structure is needed to extend a model. CasesFrame.java is no less important since it is the main driver for CASES. CasesFrame.java is not an inherited class, but is the main connection required to launch other classes.

2. Architecture

CASES is not a complicated system, however it is difficult to describe its architecture by the use of words. The following *Rational Rose* diagram, Figure 10, will help to explain the architecture of CASES. This class diagram of CASES only shows

associations among classes, since no classes are composed of others. CasesFrame.java is needed as the main bridge for connections.

This class diagram does not list the all minor and interface class files in the CASES package. It only shows the main connections among them.

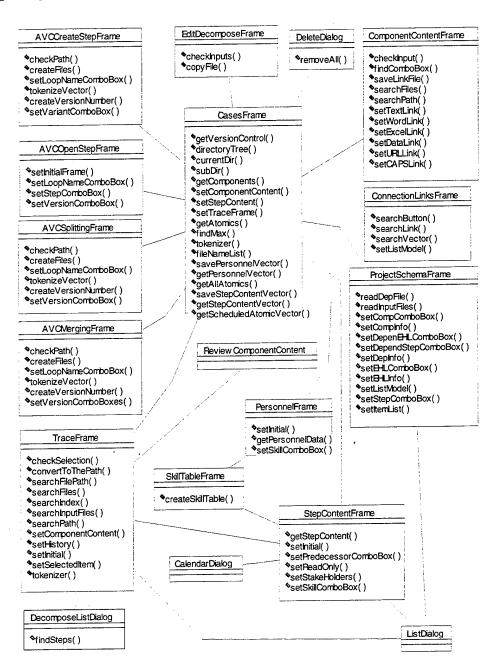


Figure 10: CASES Diagram

B. FILE STRUCTURE AND DEPENDENCY RULES

The file structure of CASES is built to match the multi-dimensional architecture of the Relational Hypergraph (RH). According to the evolutionary hypergraph model, a step has a unique output component [LUQI97]. The identifier of this component is inherited from its source step. For example, if the identifier of a step is *s-R1.1*, then the identifier of output component of this step is specified to *R1.1* through the automated version control of CASES. Without the file structure, CASES cannot trace software evolution steps and components forward and backward. The diagram shown in Figure 11 [HARN99f] describes the file structure of CASES that includes the CASES directory, project names, step identifiers and related files, version numbers, and SPIDER construction.

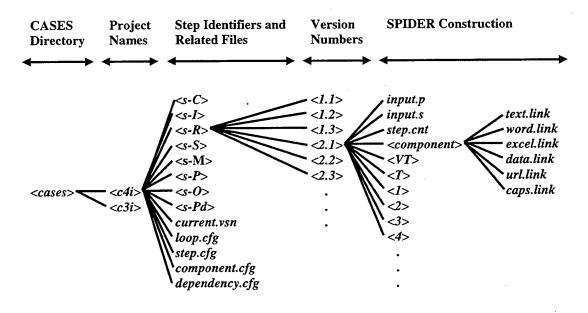


Figure 11: CASES File Structure

CASES creates new components and new version numbers without duplicating existing files in the file structure. To fulfill this requirement, CASES has algorithms and

dependency rules [BERZ98] [HARN99c] [HARN99f] to automate version control. For example, the variant and version numbering rules are as follows:

Rule 1:

Let c1 and c2 denote two different components and s denote a step. For all c1, c2, and s, it is the case that if the dependency of c1 and s is primary_input, the dependency of c2 and s is output, and the dependency of c1 and c2 is $same_variant$, then the version number of c2 is equal to the version number of c1 plus 1.

ALL($c1\ c2: C$, s: S:: c1 primary_input s & c2 output s & c1 same_variant $c2 => c2.version.version_number = c1.version.version_number + 1).$

Rule2:

Let c1 and c2 denote two different components and s denote a step.. For all c1, c2, and s, it is the case that if the dependency of c1 and s is primary_input, the dependency of c2 and s is output, and the dependency of c1 and c2 is $used_by.split$, then the version number of c2 is equal to the version number of c1 plus 1 and the variant number of c2 is equal to the highest variant number of object c1 plus 1.

ALL($c1\ c2: C$, s: S:: c1 primary_input s & c2 output $s \& c1\ used_by.split\ c2 => c2.version.version_number = c1.version.version_number + 1 & c2.version.variant_number = highest_variant_number(<math>c1.version.object_id$) + 1).

Rule3:

Let c1, c2, and c3 denote three different components and s denote a step. For all c1, c2, c3, and s, it is the case that if the dependency of c1 and s is primary_input, the

dependency of c2 and s is primary_input, the dependency of c3 and s is output, and the dependency of c1 and c2 is $used_by.merge.new_variant$, then the version number of c3 is equal to the maximum version number of c1 and c2 plus 1 and the variant number of c3 is equal to the highest variant number of object c1 plus 1.

Rule4:

Let c1, c2, and c3 denote three different components and s denote a step. For all c1, c2, c3, and s, it is the case that if the dependency of c2 and s is primary_input, the dependency of c3 and s is output, the dependency of c1 and c2 is $used_by.merge.old_variant$, and the dependency of c1 and c3 is $used_by.split$, then the version number of c3 is equal to the maximum version number of c1 and c2 plus.

ALL(c1 c2 c3: C, s: S :: c2 primary_input s & c3 output s & c1 used_by.merge.old_variant c2 & c1 used_by.split c3 => c3.version.version_number = $\max(c1.version.version_number, c2.version.version_number) + 1).$

To create new variant and version numbers, the Automated Version Control—

Create Step of CASES has to increase a variant and version number by 0.1 from the previous variant and version number. In the software evolution splitting case, the Automated Version Control—Evolution History Splitting of CASES, based on the

highest variant number of all the steps in the selected process, increases this number by 1 and increases the selected version number by 0.1 [DAMP94] [BADR94].

Similarly, Automated Version Control — Evolution History Merging has its own rules, which results in increasing the maximum variant and version number by 1 and 0.1 respectively if the new component is merged to new variant, or results in increasing the selected variant and version number by 0 and 0.1 respectively if the new component is merged to the same old variant[DAMP94] [BADR94].

CASES also has to copy the files, *input.p* and *input.s*, and the directory, Component Content from the closest top level to the new refined level. This means that the file structure of the new refined level will inherit files from its parent. CASES provides edit functions for users flexibly to modify the inherited file names.

Above rules can be implemented by the following code:

```
Rule 1:
```

```
String sub1 = ((String)currentVariantComboBox.getSelectedItem()).trim();
    String sub2 = list[0].substring(index+1);

int theMax = Integer.parseInt(sub2);

for( int i=1; i<list.length; i++){
    index = list[i].indexOf(".");
    String s = list[i].substring(0, index);
    if( s.equals(sub1)){
        sub2 = list[i].substring(index+1);
        int temp = Math.max(theMax,Integer.parseInt(sub2));
        theMax = temp;
    }
}
theMax++;
String stepVersion =
    ((String)this.currentVariantComboBox.getSelectedItem()).trim()+"."+theMax;

Rule 2:
    int i1 = Integer.parseInt(sub1)+1;
```

int i2 = Integer.parseInt(sub2)+1;

```
String stepVersion = i1+"."+i2;
       for(int i=0; i < currentStepComboBox.getItemCount(); i++){}
              String \ s = (String) current Step Combo Box. get I tem At(i);
              else if( i==currentStepComboBox.getItemCount()-1){
                      newVersionTextField.setText(stepVersion);
Rule 3:
       int\ index I = current.index Of(".");
       int index2 = merged.indexOf(".");
       String mergedVersion = null;
       String\ sub1 = current.substring(index1+1);
       String sub2 = merged.substring(index2+1);
       int theMax2 = Math.max(Integer.parseInt(sub1),Integer.parseInt(sub2));
       theMax2++;
       if(typeIndex == 0){
              mergedVersion = current.substring(0,index1)+"."+theMax2;
Rule 4:
       int\ index1 = current.indexOf(".");
       int index2 = merged.indexOf(".");
       String mergedVersion = null;
       String sub1 = current.substring(index1+1);
       String\ sub2 = merged.substring(index2+1);
       int theMax2 = Math.max(Integer.parseInt(sub1),Integer.parseInt(sub2));
       theMax2++:
       else if(typeIndex == 1){
               index1 = current.indexOf(".");
               index2 = merged.indexOf(".");
               sub1 = current.substring(0, index1);
               sub2 = merged.substring(0, index2);
               int theMax1 = Math.max(Integer.parseInt(sub1),Integer.parseInt(sub2));
               theMaxl++:
               mergedVersion = theMax1+"."+theMax2;
```

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IV. CASES IMPLEMENTATION

CASES is a friendly tool for software evolution. The implementation of CASES is based on the multi-dimensional architecture of the RH model. Most importantly, CASES can save and retrieve the RH model without using any database tools.

CASES consists of thirty-five Java files which accomplish object serialization, establishment and control of interfaces, menus and applications.

A. OBJECT SERIALIZATION

Serialization of objects is one of the most important mechanisms and improvements in Java 1.1, since it allows the creation and editing of any type of custom-built objects stored in its files. By using this powerful capability, objects can easily be written in and read back from input and output streams. These object streams can be saved into files and their object types, and complete content can be recovered from these files [FLAN97].

Taking advantage of the power of object serialization, CASES creates seven object streams. They are saved and used in files designated as: step.cfg, component.cfg, loop.cfg, current.vsn, step.cnt, and dependency.cfg. Personnel objects are saved in the stakeholder directory. Each one of these seven object streams has its own functionality. Table 1 describes their functionality and attributes in CASES.

Object	Attribute	Functionality	Example
Component Type	Identification (ID)	ID of this component type object	R
	Name	Name of this component type object	Requirement
	Description	Description of this component type object	Any remark
Dependency	Process Name	Process name of this dependency object	Software Product Generation Process
	Step Name	One of step names in the process path	s-R
	Output Component	Output of the selected step	R (default)
	Primary Input	Primary input of this dependency object	R (default)
	Secondary Input	Secondary input of this dependency object.	I (one of available component types in this project
ЕНГ	EHL Name (Process Name)	Name of process	Software Product Generation Process
	EHL Path (Process Path)	Contains all selected step types	s-C, s-R, s-I
Personnel	Identification (ID)	ID of the personnel object	3015
	Name	Name of a person	Mr. Smith

Table 1: CASES Object

Object	Attribute	Functionality	Example
	Skill	Skills of this person	3 : TAE plus : 1 6 : Ada : 3
	E-Mail	E-Mail address of this person	Smith@cs.nps.navy.mil
	Telephone	Telephone number of this person	(831) 656-2000
	Fax	Fax number of this person	(831) 656-3000
	Address	Address of this person	2000 NPS Blvd. Monterey, CA 40000
Step Content	Step Version	Step name and version number of this step	s-R1.2-2
	Status	Status of this step content	Approved
	Skill	Skill required for this step	2 : CAPS : 3 10 : Rational Rose : 2
	Security Level	Security level of this step	3
	Evaluation	Evaluation of the performance of this step	Work-alcoholic
	Evaluator	ID of this step's evaluator	3215
	Organizer	ID of this step's organizer	3508
	Predecessors	Contains predecessors of this step	s-R1.1-1.5 s-r1.1-2.1

Table 1: CASES Object

Object	Attribute	Functionality	Example
	Priority	Priority of this step	3
	Estimate Duration	Predict how long this step will finish	10
	Earliest Start Time	Can not start this step before this day	June 30, 1999
	Finish Time	Exact day to finish this step	October 31, 1999
	Manager	ID of this step's manager	2467
Step Type	Identification (ID)	ID of this step's type object	s-R
	Name	Name of this step type object	Software Product demo step
	Description	Description about this step type object	Any remark
Version Control	Current Process	The current working process' name	Software Product Generation Process
	Current Step	The current working step's name	s-R
	Current Version	The version of the current step	1.2-2
	Current Status	The status of the current step	Approved .

Table 1: CASES Object

B. MENUS

The menu bar in CASES contains five menus: *Project, Automated Version Control, SPIDER, Tools*, and *Job Schedule*. Each menu holds its own menu items. Each menu item is used to launch a specific application. When CASES is first launched, all, except *Project* menu, are grayed out, since no project is selected yet. The *Open* and *Delete* sub-menus of *Project* are also grayed out if the *CASES* directory is empty.

All of the menu items in the SPIDER menu specify restriction conditions before launching applications. For example, a menu item of SPIDER menu will display an error message if a current.vsn file does not exist in the CASES directory, since CASES can not automatically define the step the CASES user wants to process.

On the other hand, the menu items of Automated Version Control do not restrict launching applications. Applications may not exist, if loop.cfg and dependency.cfg are empty. This situation will only happen if the CASES user does not create Step Type, Component Type, Evolution Process, and Dependency for the step.cfg, component.cfg, loop.cfg, and dependency.cfg files. For this reason ProjectSchemaFrame is automatically launched whenever a user creates a new project.

If the CASES user opens an existing project, CASES allows the user to add, delete, or edit Step Type, Component Type, Evolution Process, and Dependency data. More details of CASES menus are shown in Table 2.

Menu	Menu Item	Functionality	Restrictions
Project	Create Project	Prompt to input new project name and	No restriction
	Open Project	Open one of the existing projects under	At least one project exists in CASES
		CASES directory	directory
	Delete Project	Prompt to select an existing project name and delete the entire project	At least one project exists in CASES directory and the project is not onen
	Exit	Exit CasesFrame	No restriction
Automatic Version Control	Create Step Version	Create new version number for all steps	No restriction, however, more
		in the selected process	productive if step type, component
			type, and evolution process were created
	Open Step Version	Select a step and its version number.	No restriction, however, more
		They will be saved in current.vsn file as a	productive if step type, component
		current step to process.	type, and evolution process were
			created
	Evolution History Splitting	Create the new version number for the	. No restriction, however, more
		entire steps in the selected process which	productive if step type, component
		is based on the selected version	type, and evolution process were
			created
	Evolution History Merging	Create the new version number for the	No restriction, however, more
		entire step in the selected process which	productive if step type, component
		is based on the current version and the	type, and evolution process were
		selected version number	created
SPIDER	Edit	Edit input.p, input.s files and Component	User must select a component since
		Content directory	CASES only allow to edit the
			selected component and its children
	Decompose	Decompose the selected step into the	User must select a component since
	-	lower version	CASES only allow to edit the
			selected component and its children

Table 2: CASES Menu

Menu	Menu Item	Functionality	Restrictions
	Component Content	Create link files under Component Content directory	User must select a component since CASES only allow to edit the selected component and its children
	Step Content	Create step.cnt file for the selected step	User must select a component since CASES only allow to edit the selected component and its children
	Trace	View content of steps	User must select a component since CASES only allow to edit the selected component and its children
Tools	Text	Launch notepad application and allow user to create a text file	No restriction
	MS Word	Launch MS Word application and allow user to create a word file	No restriction
	MS Excel	Launch MS Excel application and allow user to create an excel file	No restriction
	Netscape	Launch Netscape application	No restriction
	Caps	Launch Heterogeneous Systems Integrator and allow to create PSDL file	No restriction
Tools-Personnel Data	Add	0	No restriction
	Edit	Launch PersonnelFrame and allow user to create Personnel object	No restriction
	Delete	Launch DeleteDialog and allow user to select any personnel object in stakeholder directory to delete	No restriction
Job Schedule	Scheduling	Launch Scheduling application	
	Assignment	Launch Scheduling application	

Table 2: CASES Menu

C. INTERFACES

Unlike C++, Java does not have multiple inheritance capability. Java only extends one super class and allows the addition of more than one interface in the class. The key word *interface* in Java's object-oriented style is used to define a class that the user wants to be inherited [FLAN97].

Whenever a class implements an interface, the class has to define all the methods which are listed in the interface. *Interface* plays a role in such a commitment. When a class implements an interface, that class must complete the to-do-list of these methods. The class has to define these methods with exactly the same signature in the interface. However, the key to implementing an interface class in Java is that the interface does not need to know how these methods are defined in the class as long as the class has the same signatures as the interface.

CASES has nine interfaces with the purpose of advising the future programmers to include these methods in their classes when they implement interfaces (See Table 3).

Interface	Implemented By	Functionality
I_Cases	CasesFrame	Interface to create main frame for CASES
I_AVC	AVCCreateStepFrame	Interface to create new step version
	AVCSplittingFrame	Interface to split step version
	AVCMergingFrame	Interface to merge step versions
I_AVCOpenStep	AVCOpenStepFrame	Interface to open step version
I_ComponentContent	ComponentContentFrame	Interface to create/view/edit/delete link files in the
		Component Content directory
1_EditDecompose	EditDecomposeFrame	Interface to edit/decompose the current step
I_Personnel	PersonnelFrame	Interface to create/edit/view a personnel object
I_ProjectSchema	ProjectSchemaFrame	Interface to create/edit step.cfg, component.cfg, loop.cfg,
		and dependency.cfg
I_Trace	TraceFrame	Interface to view the selected component

Table 3: CASES Interface

D. APPLICATIONS

The majority of Java files in CASES are applications. These applications include JFrame, JDialog, JOptionPane, FileDialog, and JFileChooser (shown in Table 4).

JFrame allows the user to input information and to view the output from a file.

JDialog has the same behavior as JFrame but has an advantage in that JDialog does not allow a user to open the next application until JDialog has been exited.

JOptionPane has a different purpose. It is unnecessary to use JFrame or JDialog if the CASES user only needs to input one string such as the project name. JOptionPane has the input functionality to provide that option. CASES uses JOptionPane to create a new project since CASES only needs a new project name in order to initiate the process. JOptionPane also provides warning messages when errors occur, confirmation messages in order to continue, and queries to save, or upon exit.

FileDialog and JFileChooser perform similar funtions which show the system file structure. Both are used in CASES based on their characteristics and the specific requirement needed. FileDialog has a more attractive application interface compared to JFileChooser, however, FileDialog has the disadvantage of forcing the user to select a file instead of a directory before continuing the other functions.

FileDialog is the only application that is a direct sub-class of the java.awt package. The other applications are derived from Java Foundation Classes (JFC). All of the outputs of CASES applications are listed in Appendix A.

Application	Launched by	Functionality
CasesFrame	Self	Main frame of CASES
AVCCreateStepFrame	CasesFrame	Create new step version
AVCOpenStepFrame	CasesFrame	Open one of existing step versions to process
AVCSplittingFrame	CasesFrame	Splitting the selected step version into the new step version
AVCMergingFrame	CasesFrame	Merging the selected steps into the new step version
EditDecomposeFrame	CasesFrame	 Edit input.p and input.s files of the current step, or Decompose the current step into the new version and allow to edit input.p and input.s files of the current step.
ComponentContentFrame	CasesFrame, TraceFrame	Create link files under Component Content directory of the selected step
StepContentFrame	CasesFrame, TraceFrame	Create step.cnt file in the selected step
TraceFrame	CasesFrame	View contents of the selected step
PersonnelFrame	CasesFrame, TraceFrame, ReviewComponentContentDialog	Create/View personnel object

Table 4: CASES Application

Application	Launched by	Functionality
ProjectSchemaFrame	JoptionPane	Create/Edit step.cfg, component.cfg, loop.cfg, and dependency.cfg files
ReviewComponentContentDialog	ТтасеFrame	View component content of the selected step. It will use the content of links file as a parameter to connect to their equivalent application, e.g., notepad, MS Word, MS Excel, Netscape, Caps, or PersonnelFrame
ListDialog	StepContentFrame, TraceFrame, ProjectSchemaFrame	List atomics, components, or the path of these components
DeleteDialog	CasesFrame	Delete a personnel object
DescomposeListDialog	TraceFrame	List decompose components of one step at a time
SkillTableFrame	StepContentFrame, PersonnelFrame	List skill ID, skill name, and skill level
CalendarDialog	StepContentFrame	Perform as a calendar, and a user can select the specific date
ConnectionLinksFrame	ComponentContentFrame	Create/Edit/Delete links from links files

Table 4: CASES Application

V. CONCLUSIONS

A. RESULTS OF THE CASES RESEARCH PROJECT

Automatic software engineering plays a very important role in computer science [BERZ91] [SOMM96]. In this field, a prototyping tool, CAPS, has been designed for automating real-time system development. This research attempted to implement another automatic tool, CASES, to help system analysts and designers carry out their tasks in the software evolution process.

The current version of CASES has verified all of the RH model theories. CASES can perform all of the functions of the RH model including *Automated Version Control* and *Traceability*, which are the most difficult to translate from theory to coding. Without the formalization of software evolution, version control is unclear and the traceability of software evolution is impossible. The RH model provides a good structure of software evolution and CASES provides a practical way of benfitting from this theory.

CASES also has the ability to connect to many application tools and can run on any operating system as long as the system has at least JDK 1.1.7 and Swing 1.0.3 installed. In addition, Microsoft Notepad, Microsoft Word, Microsoft Excel, Netscape, and CAPS should be installed for full performance. Without these application tools, CASES still runs well but connections will be silent.

There probably are defects in CASES since this is the first research version of CASES design to validate the theory of the RH model. Future work on such defects and further improvement of CASES should prove beneficial.

B. RECOMMENDATION

CASES is the first version to prove the practicality of the RH model. Future researchers should continue to build upon and modify CASES to make it an even more effective software evolution tool. The following suggestions should be followed by future researchers to improve the structure, user friendliness, and usefulness of CASES and to avoid unnecessary frustration as well.

CASES 1.1 needs more effort to upgrade the structure to be more reliable. Up until now, no defects have been found, but this build was not targeted to be "Bug-Free". CASES should be upgraded to an operational capability rather than strictly being used for research. CASES 1.1 should have more conditions to restrict a user from inputting inappropriate data. Also, CASES should not allow the user to create an evolution process with the same step as found in other evolution processes. That means each step only occurs in one evolution process. In addition, CASES should not allow CASES users to create input files with invalid steps.

In order to make CASES friendlier, it should have a *Help* menu to explain and give examples of all CASES rules in CasesFrame. CASES should also prevent users from inputting inappropriate data in any text field.

Whenever transferring data from another machine to work on CASES, one should make sure that the receiving machine has the same version of Java Development Kit (JDK), Swing, and Visual Café library as the current machine. Without this, CASES can not open the data from the other machine since the serial identification numbers of these machines are in conflict.

Despite the few areas of opportunity listed above, CASES is a very good software evolution tool. Due to its conformance to and implementation of the RH model, it makes a significant improvement to the automation support for software evolution.

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APPENDIX A. CASES APPLICATIONS OUTPUT

Figure 1: CasesFrame
Figure 2 : ProjectSchemaFrame41
Figure 3: AVCCreateStepFrame42
Figure 4: AVCOpenStepFrame
Figure 5: AVCSplittingFrame
Figure 6: AVCMergingFrame
Figure 7: EditDecomposeFrame (Edit)
Figure 8: EditDecomposeFrame (Decompose)
Figure 9: ComponentContentFrame
Figure 10: ConnectionLinksFrame
Figure 11: StepContentFrame
Figure 12 : SkillTableFrame
Figure 13: ListDialog (Predeessor List)
Figure 14: CalendarDialog
Figure 15: DecomposeListDialog
Figure 16: ReviewComponentContentDialog
Figure 17: ListDialog (Component Content)
Figure 18: PersonnelFrame (View)
Figure 19: PersonnelFrame (Add/Edit)
Figure 20: Create Project (JOptionPane - input)
Figure 21: Open Project (IFileChooser)

Figure 22: Option Message (JOptionPane – question, confirmation)	54
Figure 23: Warning Message (JOptionPane – warning message)	55
Figure 24: Delete Personnel Date (FileDialog)	55

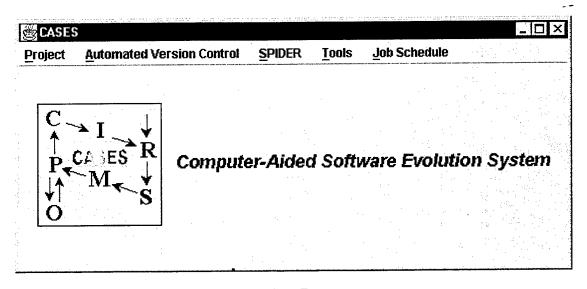


Figure 1: CasesFrame

Project Sc	hema				- , , , , -	-	Ш
Step Type	Component Type	Evolution Process	Departiency	 			
	P	roject Label:					
	Step Type	e ID		 			
· 3.	Step Type Na	me					i i f
	Existing Step Ty	pes Select a Step 1	уре		•		
	Step Type Descrip	tion			<u> </u>		
Add	Edit	Delete Cie	ear			Save	
		:					
		<u> Fi</u>	nīsh				
					1 - A	200	

Figure 2: ProjectSchemaFrame

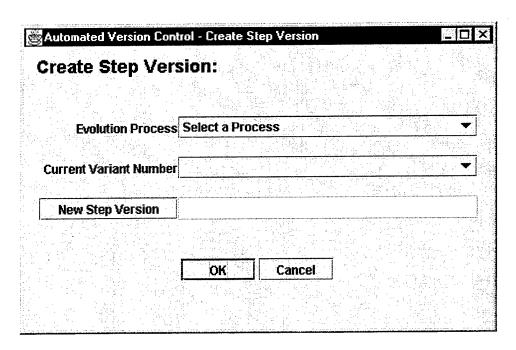


Figure 3: AVCCreateStepFrame

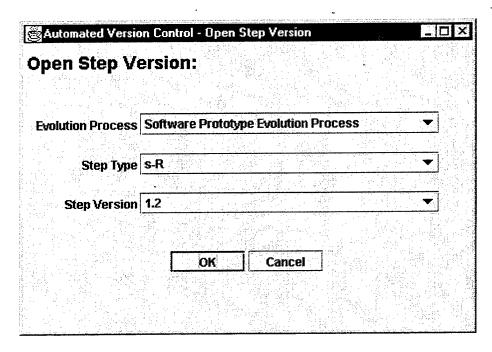


Figure 4: AVCOpenStepFrame

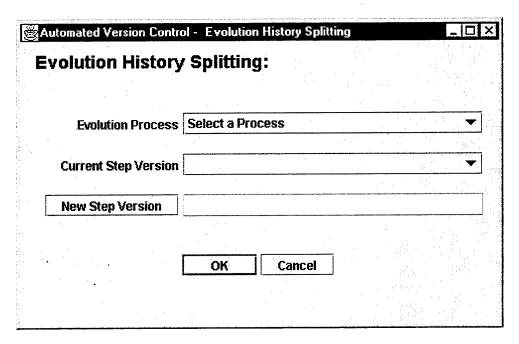


Figure 5: AVCSplittingFrame

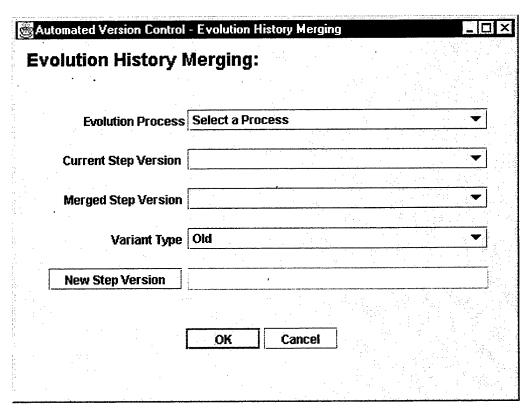


Figure 6: AVCMergingFrame

∰ SPIDER-Edit	×
Edit · EdC89	ESIc4ils-Ri1.2l2
Step Version	s-R1.2-2
Output Component	R1.2-2
Primary Input Component(s)	R1.1-1
Secondary Input Component(s)	I1.2, VT-R1.2-2
Save Delete	Cancel

Figure 7: EditDecomposeFrame (Edit)

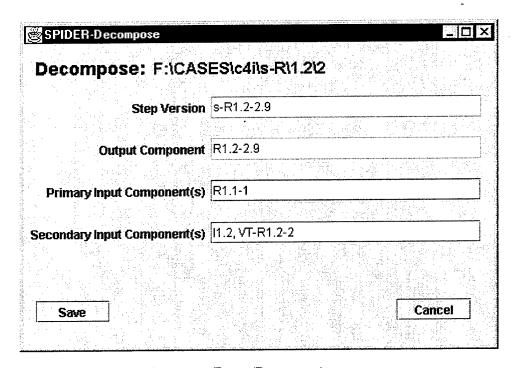


Figure 8: EditDecomposeFrame (Decompose)

PIDER-Component Omponent Cont						. **		
ailable Components:	Select a Compon	ent Type						
		Compo	nent Co	nten	t Links			
·								<u> </u>
Text Files:								
MS Word Files:								
MS Excel Files:								***************************************
Ņata Files:			·					-
pata i nes.							The second	
URLs				: .				
CAPS Files:		······		: - 			·	
Facilities								
					en e		See	Cancel
					28 8 3 36 6 36 6 38 7 38			

Figure 9: ComponentContentFrame

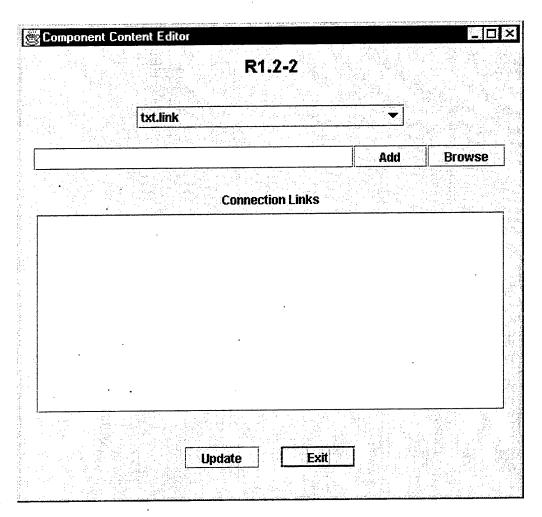


Figure 10: ConnectionLinksFrame

PIDER-Step (Content						Lie
	ton Contont: E1CASES\c	Aile Dl	1 2\2	tili er Silvania Markania			
3	tep Content: F:\CASES\c	+113-101	1.212				
Step Version	s-R1.2-2		Predec	essors			▼
Status	Proposed •			Priori	ty 0		▼ (10.00)
Skill		-	Estimate	d Duratio	on		
		.			:		
Security Level	0	7	De	adline		ng ng mgan gaga ngangganag ang paggalya nyantar residensibili nashir nashir	
Evaluation		Ī	Earliest Sta	rt Time		na nacendri neteorete er erena neren enteren eta	
Evaluator	1244	-	Finis	sh Time			
•					: .		
Organizer	1244			Manage	ег 1244		
		-				*#.	
						<u> </u>	
					Save	Delete	Exit
		4.1					
•							

Figure 11: StepContentFrame

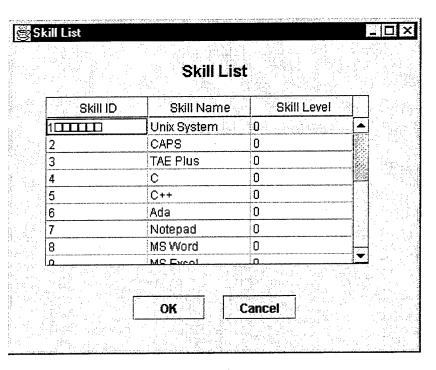


Figure 12: SkillTableFrame

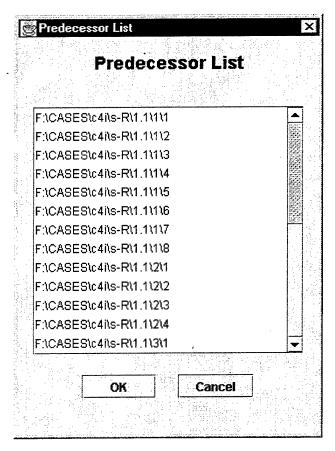


Figure 13: ListDialog (Predecessor List)

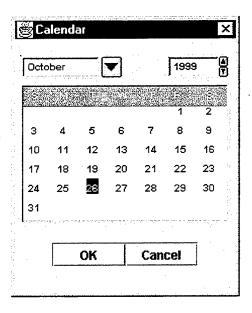


Figure 14: CalendarDialog

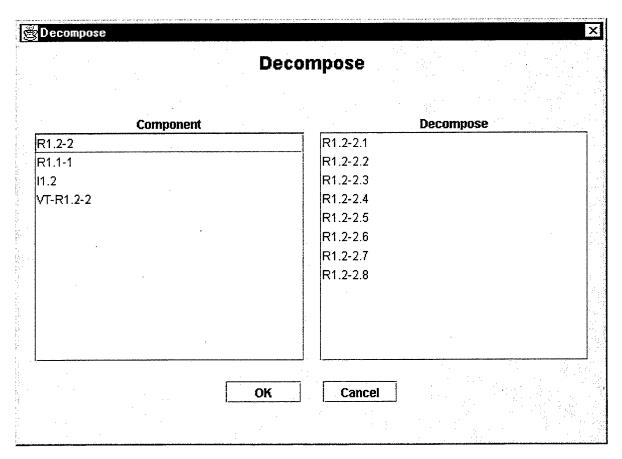


Figure 15: DecomposeListDialog

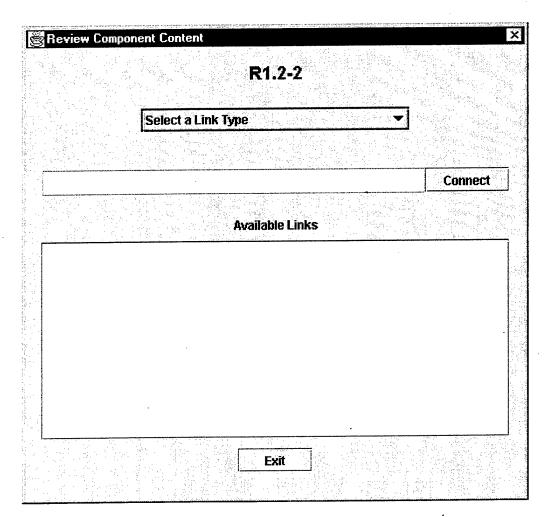


Figure 16: ReviewComponentContentDialog

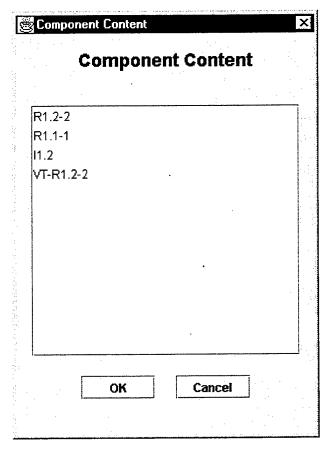


Figure 17: ListDialog (Component Content)

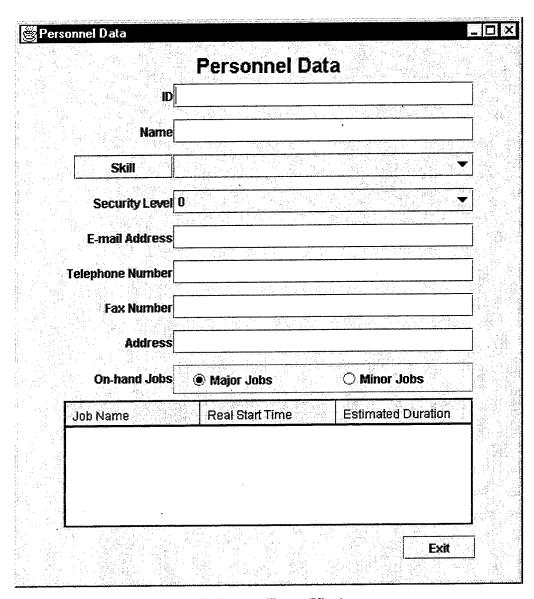


Figure 18: PersonnelFrame (View)

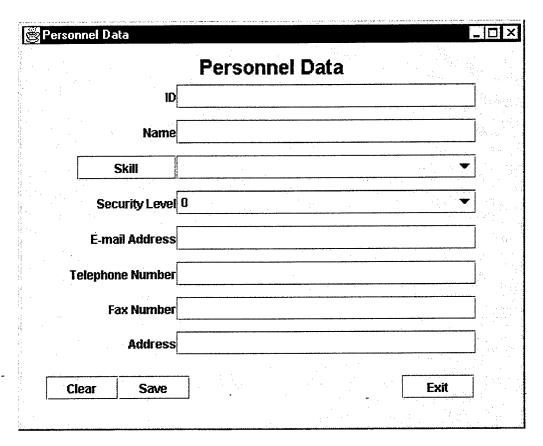


Figure 19: PersonnelFrame (Add/Edit)

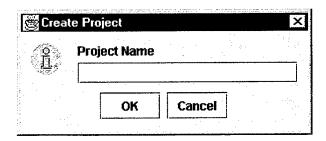


Figure 20: Create Project (JOptionPane, input)

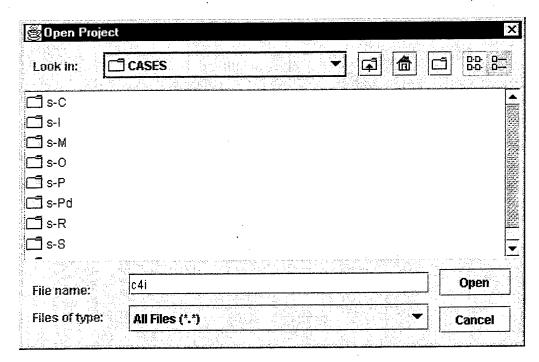


Figure 21: Open Project (JFileChooser)

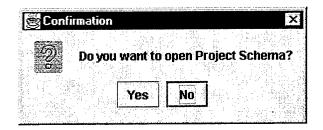


Figure 22: Option Message (JoptionPane-question, confirmation)

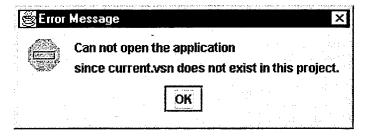


Figure 23: Warning Message (JOptionPane, warning message)

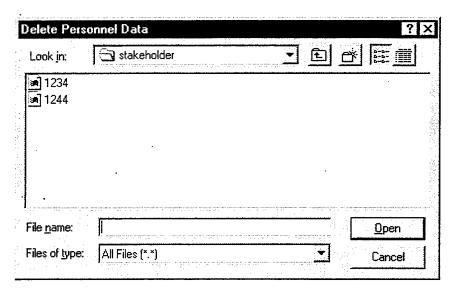


Figure 24: Delete Personnel Date (FileDialog)

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APPENDIX B. SOURCE CODE

Cases.AVCCreateStepFrame,59
Cases.AVCMergingFrame,66
Cases.AVCOpenStepFrame,75
Cases.AVCSplittingFrame,81
Cases.CalendarDialog,89
Cases.CasesFrame,
Cases.CasesTitle,
Cases.ComponentContentFrame,
Cases.ComponentType,
Cases ConnectionLinksFrame,
Cases.DecomposeListDialog,
Cases.DeleteDialog,
Cases.Dependency,
Cases.EditDecomposeFrame,
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Cases.I_ComponentContent,
Cases.I_EditDecompose,
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Cases.SkillTableFrame,	
Cases.StepContent,	
Cases.StepContentFrame,	
Cases.StepType,	
Cases.TraceFrame,	
Cases VersionControl	234

```
JLabel9.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                      // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // the components. To modify the code, only use code
                                 * depHashtable: stores all Dependency objects which retrieve from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setTitle("Automated Version Control - Create Step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JLabel9.setForeground(java.awt.Color.black);
                                                                                                                                                   public Hashtable depHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JLabel9.setText("Evolution Process");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JLabel9.setBounds(15,70,140,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             getContentPane().add(JLabel9);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       // (INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                              public AVCCreateStepFrame()
                                                                                                                                                                                                                                                                                                     * Creating AVCCreateStepFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       setSize(470,280);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      syntax that matches
                                                                           dependency.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nts.RIGHT);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Version");
                                                                                                                                                                                                                                                                                                                                                                              in the current project at the same time. That means these steps always
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * EHLHashtable : stores all EHL objects which retrieve from loop.cfg
                                                                                                                                                                                                                                                                                                                                         * Automatic Version Control - Create new version number for all steps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public class AVCCreateStepFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * versionVector: stores all version numbers of current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * pathName : current path name, C:\Cases\projectName
                                                                                                                                                                                                                                                                 public Vector versionVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                       have the same number of versions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public String pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Implements interface I_AVC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               implements CasesTitle, I_AVC
                                                                                                                                                      import com.sun.java.swing.*;
                                                                             import java.awt.event.*;
                                                                                                                                                                                        import java.text.*;
                                                                                                               import java.util.*;
                                      import java.awt. *;
import java.io. *;
```

public Hashtable EHLHashtable = new Hashtable();

package Cases;

projectLabel.setVerticalAlignment(com.sun.java.swing.SwingCon newStepVersionButton.addActionListener(ISymAction); currentVariantComboBox.addItemListener(ISymItem); newStepVersionButton.setActionCommand("New Step * To be called when Create Step Version Menu Item of CasesFrame * Retrieving Dependency and EHL object from dependency.cfg and projectLabel.setFont(new Font("Dialog", Font.BOLD, newStepVersionButton.setText("New Step Version"); newStepVersionButton.setBounds(15,150,140,22); projectLabel.setForeground(java.awt.Color.black); getContentPane().add(newStepVersionButton) cancelButton.addActionListener(ISymAction); EHLComboBox.addItemListener(ISymItem); SymAction ISymAction = new SymAction(); OKButton.addActionListener(ISymAction); EHLComboBox.setBounds(155,70,300,22); getContentPane().add(EHLComboBox); projectLabel.setBounds(210,6,200,25); SymItem ISymItem = new SymItem(); projectLabel.setText("Project Label"); getContentPane().add(projectLabel); //{REGISTER_LISTENERS receives the event from user. //{ INIT_MENUS stants.BOTTOM); Version"); 18); JLabell.setHorizontalAlignment(com.sun.java.swing.SwingConsta JLabel1.setVerticalAlignment(com.sun.java.swing.SwingConstant currentLabel.setHorizontalAlignment(com.sun.java.swing.SwingC JLabel1.setFont(new Font("Dialog", Font.BOLD, 18)); currentVariantComboBox.setBounds(155,110,300,22) newVersionTextField.setBackground(java.awt.Color.white); newVersionTextField.setForeground(java.awt.Color.black); newVersionTextField.setBounds(155,150,300,22); currentLabel.setForeground(java.awt.Color.black); getContentPane().add(currentVariantComboBox); currentLabel.setText("Current Variant Number"); Label1.setForeground(java.awt.Color.black); getContentPane().add(newVersionTextField); cancelButton.setActionCommand("jbutton"); OKButton.setActionCommand("jbutton"); Labell.setText("Create Step Version: "); cancelButton.setBounds(236,210,75,22); newVersionTextField.setEditable(false); currentLabel.setBounds(15,110,140,22); OKButton.setBounds(158,210,75,22); getContentPane().add(cancelButton) getContentPane().add(currentLabel) getContentPane().add(OKButton) Label1.setBounds(10,6,190,25); getContentPane().add(JLabel1); cancelButton.setText("Cancel"); OKButton.setText("OK"); onstants.RIGHT); s.BOTTOM); nts.RIGHT);

loop.cfg files

```
setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // Adjust size of frame according to the insets and menu
                                                                                                                                                                                                                                                                                                                                                                                                                                                      // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                            (new AVCCreateStepFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JMenuBar menuBar =
                                                                  setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  insets.bottom + size.height + menuBarHeight);
                                                                                                                                                                                                        static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   menuBarHeight =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int menuBarHeight = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if (menuBar != null)
                                                                                                   super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                menuBar.getPreferredSize().height;
                                                                                                                                                                                                                                                                                                                                                                                public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getRootPane().getJMenuBar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // Used by addNotify
                              if (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bar
                              public AVCCreateStepFrame( String pathName, String dirName ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ObjectInputStream loopIn = new ObjectInputStream( fileInput );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fileInput = new FileInputStream( this.pathName+"\loop.cfg");
                                                                                                                                                                                                                                                                            ObjectInputStream dep = new ObjectInputStream( fileInput );
                                                                                                                                                                                                                                                                                                                                              this.depHashtable = (Hashtable) dep.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.setLoopNameComboBox( loopVector );
                                                                                                                                                                                                          FileInputStream fileInput = new FileInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              catch( IOException e ){ debug("IOException: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            loopVector = (Vector)loopIn.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  // Setting Evolution Process combobox
                                                                                                   this.projectLabel.setText( dirName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vector loopVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 debug("ClassNotFoundException: "+ex);
                                                                                                                                        :his.pathName = pathName;
                                                                                                                                                                                                                                           this.pathName+"\\dependency.cfg");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( loopVector.size() > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ){ | Ilnu = | uIdool )}
                                                                                                                                                                                                                                                                                                                                                                                                                                                      fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fileInput.close();
                                                                                                                                                                                                                                                                                                                if( dep != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          loopIn.close();
                                                                                                                                                                                                                                                                                                                                                                                                                     dep.close();
*
```

```
cancelButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                         * Create new directory with new version number for all steps of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Create new version number and the default version is 1.1
                                                                          else if (object == newStepVersionButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cancelButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param event, occur when user press New Version button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OKButton_actionPerformed(java.awt.event.ActionEvent event)
  else if (object == cancelButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param event, occur when user press Cancel button
                                                                                                                                                       newStepVersionButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                     * @param event, occur when user press OK button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       checkPath(this.versionVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Exit AVCCreateStepFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dispose();
                                                                                                                                                                                                                                                                                                                                                                                 current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JComboBox currentVariantComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JTextField newVersionTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JButton newStepVersionButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JComboBox EHLComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JButton cancelButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JLabel projectLabel = new
                                                                                                                                                                                    com.sun.java.swing.JLabel currentLabel = new
                                                                                                                                                                                                                                                            com.sun.java.swing.JButton OKButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (object == OKButton)
                                                                                                         com.sun.java.swing.JLabel JLabel9 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JLabel JLabel1 = new
boolean frameSizcAdjusted = false;
                                                                     //{ | DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //{ DECLARE_MENUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JTextField();
                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JLabel();
                                                                                                                                                                                                                        com.sun.java.swing.JLabel();
                                                                                                                                                    com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             event)
```

```
currentVariantComboBox_itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                          EHL chl = (EHL)this.EHLHashtable.get( selectedItem );
                                                        if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                           int selectedIndex = this.EHLComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                                                                       if(this.EHLHashtable.containsKey(selectedItem)){
                                                                                                                                                                                                                                                                                                                                                                                                                           this.setVariantComboBox( this.versionVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * @param event, occur when user select Variant number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String currentStep = ((String)event.getItem()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.currentVariantComboBox.removeAllItems();
                                                                                           String selectedItem = (String)event.getItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.newVersionTextField.setText("");
                                                                                                                                                                                                                                                                                                                  this.versionVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Allows a user to select different variants
                                                                                                                                                                                                                                                                                                                                                                                     tokenizeVector((String)ehl.getEHLPath());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             newVersionTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else if( selectedIndex == 0){
                                                                                                                                                                                                                                                                                                                                                  this.versionVector =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Short cut to print the output
                                                                                                                                                                                                 if( selectedIndex > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                         if( this.currentVariantComboBox.getItemCount() == 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Allows a user to select all the available Evolution processes in the
                                     newStepVersionButton\_actionPerformed (java.awt.event.ActionEvent) \\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHLComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if (object == currentVariantComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param event, occur when user select Evolution Process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 currentVariantComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else if (object == EHLComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                     create VersionNumber(this.versionVector);
                                                                                                                                                if( (EHLComboBox.getItemCount() > 0) &&
                                                                                                                                                                                                                                                          newVersionTextField.setText("1.1");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHLComboBox_itemStateChanged(event);
                                                                                                                                                                                 (EHLComboBox.getSelectedIndex() > 0) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void
public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      compopox
                                                                               event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  event)
```

```
this.currentVariantComboBox.addItem(v.elementAt(j));
                                                                                                                                                       * Adding variant number of the step into currentVariantComboBox
                                                                                                                                                                                                                                                          public void setVariantComboBox( Vector theVersionVector ){
                                                                                                                                                                                           * @param the Version Vector: vector of variant number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.currentVariantComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             String sub1 = (s.substring(0,index)).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                              /* Clean the combo box before update it */
EHLComboBox.addItem(loopName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             newVersionTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for( int i=0; iiii++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for(int j=0; j<v.size(); j++){
                                                                                                                                                                                                                                                                                                  File aFile = new File(this.pathName,
                                                                                                                                                                                                                                                                                                                              (String)theVersionVector.elementAt(0));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int index = s.indexOf(".");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v.addElement(sub1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(!v.contains(sub1)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                             String[] list = aFile.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String s = list[i];
                                                                                                                                                                                                                                                                                                                                                                 if( aFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if(v.size() > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (list.length > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void setLoopNameComboBox( Vector loopVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          v.addElement( ((String)st.nextToken()).trim() );
                                                                                                                                                                                                                                                                                                                                                                                                            StringTokenizer st = new StringTokenizer( string, "," );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @param loopVector: vector of evolution processes
                                                                                                                                                                                                                                                                                                                                                                            public Vector tokenizeVector(String string){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Adding evolution processes into EHLComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EHL ehl = (EHL)loopVector.elementAt( i );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EHLComboBox.addItem(PROCESS_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.EHLHashtable.put( loopName, ehl );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String loopName = ehl.getEHLName();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for( int i=0; i < loopVector.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.EHLHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                               * @return v : vector of string without ","
                                                                             public void debug( String string ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               while(st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EHLComboBox.removeAllItems();
                                                                                                           System.out.println( string );
                                                                                                                                                                                                                                                                               * @param string: tokenized string
                * @param string: the output string
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //set step Hashtable
                                                                                                                                                                                                                                                  * Tokenizing a string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return v;
```

```
* Go to each step (e.g., s-I, s-C, s-R, ...) and create new directory with
                                                                                                                                                                                                                                                                                     String currentVersion = this.newVersionTextField.getText();

    * Create Component Content directory and link files inside it.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  File theFile = new File(f,currentVersion);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    File f = new File(myFile, (String)myList[m]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dependency dep = (Dependency)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for(int m=0; m<myList.length; m++){
                                                                                                                                                                                                                                                                                                                                                               File myFile = new File(this.pathName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          createFiles(dep, theFile);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(!theFile.isDirectory()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if( v.contains(f.getName()) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( theFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                 String[] myList = myFile.list();
                                                                                                                                         * the name is new version number
                                                                                                                                                                            * @param v : vector of step names
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.depHashtable.get( f.getName() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         theFile.mkdir();
                                                                                                                                                                                                                                                public void checkPath(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    theFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(f.isDirectory()){
                                                                                                                                                                                                                                                                                                                                                                                                 if( myFile.exists()) {
                                                                                                                                                                                                                                                                                                                          if( v.size() > 0 ) 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ((String)this.currentVariantComboBox.getSelectedItem()).trim()+"."+theM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     int temp = Math.max(theMax,Integer.parseInt(sub2));
* Create new version number for all steps in the current project
                             * @param v : vector of string (e.g., 1.1, 1.2, 2.1, ...) and they
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ((String)currentVariantComboBox.getSelectedItem()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             newVersionTextField.setText(stepVersion);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               String sub2 = list[0].substring(index+1);
                                                                                                                                                                                                                                                   /* To check aFile is existing or not */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         String s = list[i].substring(0, index);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sub2 = list[i].substring(index+1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    int the Max = Integer.parseInt(sub2);
                                                                    represent all existing version numbers
                                                                                                                                         public void createVersionNumber(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for( int i=1; i<list.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      int index = list[0].indexOf(".");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         index = list[i].indexOf(".")
                                                                                                                                                                                                                                                                                                                                                                                                   String[] list = aFile.list();
                                                                                                                                                                                                                                                                                                                            File(this.pathName,(String)v.elementAt(0));
                                                                                                                                                                                                                                                                                                                                                               if( aFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(s.equals(sub1)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          theMax = temp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String stepVersion =
                                                                                                                                                                                                                                                                                          File aFile = new
                                                                                                                                                                                                                                                                                                                                                                                                                                        if (list.length > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catch( Exception e){}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           String sub1 =
                                                                                                                                                                              if( v.size() > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 theMax++;
```

```
* Implement Cases Title where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Automatic Version Control - Evolution History Merging : to merge two
    DataOutputStream depSecondary = new DataOutputStream(
                                                                                                        depSecondary.writeBytes(dep.getSecondaryInput());
                                                                                                                                                                                                                                                                                                                  catch( IOException e ){ debug("dep_IOException: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   versions, and create the new version.
                                                                    if( depSecondary != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Implements interface I_AVC
                                                                                                                                                                          depSecondary.flush();
                                                                                                                                                                                                                depSecondary.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             import com.sun.java.swing.*;
                                                                                                                                                                                                                                                 fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 import java.awt.event.*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mport java.text.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             import java.awt. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mport java.util. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        import java.io. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              existing
                                                                                                                                                                                                                                                                              //and include txt.link, word.link, excel.link, data.link, url.link, and
                                                                                                                                                                                                                                                                                                                                                   File compContent = new File(theFile, "Component Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BufferedWriter bw = new BufferedWriter(fileWriter);
* @param dep: Dependency object of the File and get input.p and
                                                                                                                                                                                                                                        //Create Component Content subdirectory in thte new step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DataOutputStream depPrimary = new DataOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FileWriter fileWriter = new FileWriter( newFile );
                                                                                                                                                                                                                                                                                                                                                                                                                                                  for( int i=0; i<LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    depPrimary.writeBytes(dep.getPrimaryInput());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FileOutputStream(theFile.getAbsolutePath()+"\\input.p");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FileOutputStream(theFile.getAbsolutePath()+"\\input.s");
                                                                                                                                     public void createFiles( Dependency dep, File theFile){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          File newFile = new File(compContent,

    * @param theFile: current version directory

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FileOutputStream fileOutput = new
                                                                                                                                                                                                                                                                                                                                                                                                                 if( compContent.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if( depPrimary != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fileWriter.close();
                                                                                                                                                                                                                                                                                                                                                                                    compContent.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            depPrimary.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        depPrimary.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fileOutput = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LINK_FILE_NAMES[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bw.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bw.close();
                                                                                                                                                                        if( dep != null ){
```

```
JLabel9.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JLabel11.setHorizontalAlignment(com.sun.java.swing.SwingConst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            currentStepLabel.setHorizontalAlignment(com.sun.java.swing.Swi
                                                                                                                                                              setTitle("Automated Version Control - Evolution History
     // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        currentStepLabel.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         currentStepLabel.setText("Current Step Version");
                                                                                 // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Label11.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JLabel9.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cancelButton.setActionCommand("jbutton");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              currentStepLabel.setBounds(23,110,144,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OKButton.setActionCommand("jbutton");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               getContentPane().add(currentStepLabel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JLabel9.setText("Evolution Process");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OKButton.setBounds(171,290,75,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Label11.setBounds(23,190,145,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        J. J. Labell 1. setText("Variant Type");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JLabel9.setBounds(26,70,145,22);
                                                                                                                                                                                                                                              getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getContentPane().add(OKButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 getContentPane().add(JLabel11);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cancelButton.setText("Cancel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                getContentPane().add(JLabel9);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OKButton.setText("OK");
                                                                                                                     //{ INIT_CONTROLS
                                                                                                                                                                                                                                                                                 setSize(500,360);
                                                                                                                                                                                                                                                                                                                          setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ngConstants.RIGHT);
                                           unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ants.RIGHT);
                                                                                                                                                                                                                                                                                                                                                                                                                                              nts.RIGHT)
                                                                                                                                                                                                       Merging");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * EHLHashtable : stores all EHL objects which retrieve from loop.cfg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * depHashtable: stores all Dependency objects which retrieve from
public class AVCMergingFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                     * versionVector: stores all version numbers of current project
                                                                                                                                                         * pathName : current path name, e.g. C:\Cases\projectName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public Hashtable EHLHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public Hashtable depHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public Vector versionVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public AVCMergingFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Creating AVCMergingFrame
                                                                                                                                                                                                                                                                                 public String pathName;
                                      implements CasesTitle, I_AVC
                                                                                                                                                                                                     D:\Cases\projectName, ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dependency.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and initializes
```

getContentPane().add(cancelButton);

syntax that matches

cancelButton.setBounds(249,290,75,22); getContentPane().add(currentStepComboBox); currentStepComboBox.setBounds(173,110,300,22);

JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel1.setVerticalAlignment(com.sun.java.swing.SwingConstant,BOTTOM);

JLabell.setText("Evolution History Merging: ");
getContentPane().add(JLabel1);
JLabell.setForeground(java.awt.Color.black);
JLabell.setFont(new Font("Dialog", Font.BOLD, 18));
JLabell.setBounds(0,6,250,25);

projectLabel.setVerticalAlignment(com.sun.java.swing.SwingConstants.BOTTOM);

projectLabel.setText("Project Label");
getContentPane().add(projectLabel);
projectLabel.setForeground(java.awt.Color.black);
projectLabel.setFont(new Font("Dialog", Font.BOLD,

getContentPane().add(EHLComboBox); EHLComboBox.setBounds(173,70,300,22);

projectLabel.setBounds(250,6,250,25);

18));

JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel2.setText("Merged Step Version");

getContentPane().add(JLabel2);

JLabel2.setForeground(java.awt.Color.black);

JLabel2.setBounds(23,150,145,22);

getContentPane().add(mergedStepComboBox);

mergedStepComboBox.setBounds(173,150,300,22);

newVersionTextField.setEditable(false);

getContentPane().add(newVersionTextField);

**/

```
newStepVersionButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                          newStepVersionButton.setActionCommand("New Step
                                                                                                                                                                                                                                                              newStepVersionButton.setText("New Step Version");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mergedStepComboBox.addItemListener(ISymItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                currentStepComboBox.addItemListener(ISymItem);
newVersionTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                    newStepVersionButton.setBounds(33,230,135,22);
                                                                                   newVersionTextField.setForeground(java.awt.Color.black);
                                                                                                                            newVersionTextField.setBounds(173,230,300,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      variantComboBox.addItem(VARIANT_TYPES[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   variantComboBox.addItemListener(ISymItem);
                                                                                                                                                                                                                  variantComboBox.setBounds(173,190,300,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cancelButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                           getContentPane().add(newStepVersionButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EHLComboBox.addItemListener(ISymItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OKButton.addActionListener(ISymAction)
                                                                                                                                                                        getContentPane().add(variantComboBox);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SymItem ISymItem = new SymItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for( int i=0; i<VARIANT_TYPES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            variantComboBox.setSelectedIndex(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   //{REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /* Adding item to variantComboBox */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //(INIT_MENUS
                                                                                                                                                                                                                                                                                                                                                       Version");
```

```
// Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (new AVCMergingFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                                                    debug("ClassNotFoundException_loop: "+ex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                            catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if (frameSizeAdjusted)
                                                                                                                                                                                                           debug("IOException_loop: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void addNotify()
                                                                                                                                                                     catch( IOException e ){
                                                                                                      fileInput.close();
                                                                   loopIn.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ObjectInputStream loopIn = new ObjectInputStream( fileInput );
                                                                                                  * Retrieving Dependency and EHL object from dependency.cfg and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ObjectInputStream dep = new ObjectInputStream( fileInput );
* To be called when Evolution History Merging Menu Item of
                                                                                                                                                                                                           public AVCMergingFrame( String pathName, String dirName ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.depHashtable = (Hashtable) dep.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FileInputStream fileInput = new FileInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                             FileInputStream fileInput = new FileInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       debug("ClassNotFoundException_Dep: "+ex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         loopVector = (Vector)loopIn.readObject();
                                                                                                                                                                                                                                                                                this.projectLabel.setText( dirName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vector loopVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              debug("IOException_Dep: "+e);
                                                                                                                                                                                                                                                                                                                    this.pathName = pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.pathName+"\dependency.cfg");
                                                                   receives the event from user.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( loopVector.size() > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.pathName+"\loop.cfg" );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( loopIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (dep != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        dep.close();
                                                                                                                                          loop.cfg files
```

this.setLoopNameComboBox(loopVector);

// Adjust size of frame according to the insets and meni	com sun jaya swing ICombo Box merged Sten Combo Box - new
bar	com.sun.java.swing.JComboBox();
Insets insets = getInsets();	com.sun.java.swing.JTextField newVersionTextField = new
com.sun.java.swing.JMenuBar menuBar =	com.sun.java.swing.JTextField();
<pre>getRootPane().getJMenuBar();</pre>	com.sun.java.swing.JComboBox variantComboBox = new
int menuBarHeight = 0;	com.sun.java.swing.JComboBox();
if (menuBar != null)	com.sun.java.swing.JButton newStepVersionButton = new
menuBarHeight =	com.sun.java.swing.JButton();
menuBar.getPreferredSize().height;	<i> </i> }}
setSize(insets.left + insets.right + size.width, insets.top +	
insets.bottom + size.height + menuBarHeight);	//{DECLARE_MENUS
	<i>{{///</i>
// Used by addNotify	
boolean frameSizeAdjusted = false;	class SymAction implements java.awt.event.ActionListener
//{DECLARE CONTROLS	
com.sun.java.swing.TLabel JLabel9 = new	paony vola actioni citotine gava awi.eveni. Actioni vola event)
	}
com.sun.java.swing.JLabel currentStepLabel = new	Object object = event.getSource();
com.sun.java.swing.JLabel();	if (object == OKButton)
com.sun.java.swing.JLabel JLabel11 = new	OKButton_actionPerformed(event);
com.sun.java.swing.JLabel();	else if (object == cancelButton)
com.sun.java.swing.JButton OKButton = new	cancelButton_actionPerformed(event
com.sun.java.swing.JButton();	else if (object == newStepVersionButton)
com.sun.java.swing.JButton cancelButton = new	
com.sun.java.swing.JButton();	newStepVersionButton_actionPerformed(event);
com.sun.java.swing.JComboBox currentStepComboBox = new	
com.sun.java.swing.JComboBox();	
com.sun.java.swing.JLabel JLabel1 = new	
com.sun.java.swing.JLabel();	**
com.sun.java.swing.JLabel projectLabel = new	* Create new directory with new version number for all steps of the
com.sun.java.swing.JLabel();	current project
com.sun.java.swing.JComboBox EHLComboBox = new	* @param event, occur when user press OK button
com.sun.java.swing.JComboBox();	·*
com.sun.java.swing.JLabel JLabel2 = new	public void OKButton_actionPerformed(java.awt.event.ActionEvent
com.sun.java.swing.JLabel();	event)

```
public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * Allows a user to select all the available Evolution processes in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EHLComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                          else if (object == currentStepComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int selectedIndex = this.EHLComboBox.getSelectedIndex();
class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else if (object == variantComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * @param event, occur when user select Evolution Process
                                                                                                                                                                                               Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else if (object == mergedStepComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                  currentStepComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          currentStepComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       currentStepComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                     if (object == EHLComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.mergedStepComboBox.removeAlIItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.currentStepComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String selectedItem = (String)event.getItem();
                                                                                                                                                                                                                                                                                                               EHLComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       newVersionTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  combobox
                                                                                                                       event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               createVersionNumber(variantComboBox.getSelectedIndex());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       newStepVersionButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Create new version number and the default version is 1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(this.currentStepComboBox.getItemCount()>0 &&
                                                                                                                                                                                                                                                                                                                                                                                                                                     cancelButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.mergedStepComboBox.getItemCount() > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param event, occur when user press New Version button
                                                                                                                                                                                                                                                                                                                  * @param event, occur when user press Cancel button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if (EHLComboBox.getItemCount() > 0) &&
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  newVersionTextField.setText("1.1");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (EHLComboBox.getSelectedIndex() > 0)){
                                     checkPath(this.versionVector);
                                                                                                                                                                                                                                                                     * Exit AVCMergingFrame
                                                                        setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                               public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dispose();
                                                                                                                  dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    event)
```

```
this.currentStepComboBox.addItem(((String)list[i]).trim());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.mergedStepComboBox.addItem(((String)list[i]).trim());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public void setVersionComboBoxes( Vector versionVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Adding version numbers to currentStepComboBox and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param versionVector: vector of version numbers
                                                                                                                                                                                                                                                    EHL ehl = (EHL)loopVector.elementAt( i );
                                          EHLComboBox.addItem(PROCESS_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.EHLComboBox.addItem(loopName);
                                                                                                                                                                                                                                                                                                                                                                                                                        this.EHLHashtable.put( loopName, ehl );
                                                                                                                                                                                                                                                                                                  String loopName = ehl.getEHLName();
                                                                                                                                                                                                            for( int i=0; i < loopVector.size(); i++ ){
                                                                                                                           his.EHLHashtable = new Hashtable()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for( int i=0; iiii++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            File aFile = new File(this.pathName,
EHLComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (String)versionVector.elementAt(0));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String[] list = aFile.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if( aFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                //set step Hashtable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( list.length > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mergedStepComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          currentStepComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void setLoopNameComboBox( Vector loopVector ){
                                                                                EHL ehl = (EHL)this.EHLHashtable.get( selectedItem );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Allows a user to select all the available steps in the combobox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @param event, occur when user select currentStepComboBox
                                                                                                                                                                                                                                                       this.setVersionComboBoxes(this.versionVector);
                                        if(this.EHLHashtable.containsKey(selectedItem)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if( event, getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param loopVector: vector of evolution processes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Adding evolution processes into EHLComboBox
                                                                                                                                this.versionVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void debug( String string) (
                                                                                                                                                                                                         tokenizeVector((String)ehl.getEHLPath());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                newVersionTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        System.out.println( string );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param string: the output string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Short cut to print the output
                                                                                                                                                                   this.versionVector =
if selectedIndex > 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public void
```

```
mergedVersion = current.substring(0,index1)+"."+theMax2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOptionPane.showMessageDialog(this, mergedVersion+"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for( int i=0; i<currentStepComboBox.getItemCount(); i++ ){</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String s = (String)currentStepComboBox.getItemAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if( i==currentStepComboBox.getItemCount()-1){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     newVersionTextField.setText(mergedVersion);
                                                                                                                                                   Math.max(Integer.parseInt(sub1),Integer.parseInt(sub2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Math.max(Integer.parseInt(sub1),Integer.parseInt(sub2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mergedVersion = theMax1+"."+theMax2;
                                                                       String sub2 = merged.substring(index2+1);
                                   String sub1 = current.substring(index1+1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sub2 = merged.substring(0, index2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sub1 = current.substring(0, index1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Error Message",
int index2 = merged.indexOf(".");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( s.equals(mergedVersion) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                  index1 = current.indexOf(".");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     index2 = merged.indexOf(".")
                                                                                                                                                                                                                       String mergedVersion = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             version already exists in this project!"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                            else if( typeIndex == 1 ){
                                                                                                                                                                                                                                                                                                 if (typeIndex == 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int the Max 1 =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            theMax1++;
                                                                                                             int the Max2 =
                                                                                                                                                                                    theMax2++;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  return;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOptionPane.showMessageDialog(this, " Current Step Version must
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Create new version number for all steps in the current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * @param typeIndex = 0 ==> variant is old, new version =
                                                                                                                                                                                                                                                                                                                                     v.addElement( ((String)st.nextToken()).trim() );
                                                                                                                                                                                                                       StringTokenizer st = new StringTokenizer( string, "," );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ((String)mergedStepComboBox.getSelectedItem()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ((String)currentStepComboBox.getSelectedItem()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            = 1 ==> variant is new, new version =
                                                                                                                                                                                      public Vector tokenizeVector(String string){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void createVersionNumber(int typeIndex){
                                                                                                             * @return v : vector of string without ","
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        be different from Merged Step Version!",
                                                                                                                                                                                                                                                                                                 while(st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( current.equals(merged) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Error Message",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (highestVariant+1).(highestVersion+1);
                                                                       * @param string: tokenized string
                                                                                                                                                                                                                                                             Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 currentVariant.(highestVersion+1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         String merged =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               String current =
                                 * Tokenizing a string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return;
                                                                                                                                                                                                                                                                                                                                                                                                                   return v;
```

catch(Exception e) { }

int index1 = current.indexOf(".");

```
File compContent = new File(theFile, "Component Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BufferedWriter bw = new BufferedWriter (fileWriter );
* @param dep: Dependency object of the File and get input.p and
                                                                                                                                                                                                                                                           //Create Component Content subdirectory in thte new step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DataOutputStream depPrimary = new DataOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FileWriter fileWriter = new FileWriter( newFile );
                                                                                                                                                                                                                                                                                                 //and include txt.link, data.link, url.link, and caps.link
                                                                                                                                                                                                                                                                                                                                                                                                                                               for( int i=0; i<LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            depPrimary.writeBytes(dep.getPrimaryInput());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FileOutputStream(theFile.getAbsolutePath()+"\\input.s");
                                                                                                                                            public void createFiles( Dependency dep, File theFile)(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FileOutputStream(theFile.getAbsolutePath()+"\\input.p")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     File newFile = new File(compContent,

    * @param theFile: current version directory

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FileOutputStream fileOutput = new
                                                                                                                                                                                                                                                                                                                                                                                                              if( compContent.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( depPrimary != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fileWriter.close();
                                                                                                                                                                                                                                                                                                                                                                             compContent.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       depPrimary.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 depPrimary.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fileOutput = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LINK FILE NAMES[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bw.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              bw.close();
                                                                                                                                                                                    if( dep != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fileOutput);
                                        input.s files
                                                                                                                                              * Go to each step (e.g., s-I, s-C, s-R, ...) and create new directory with
                                                                                                                                                                                                                                                                                                                                     String mergedVersion = this.newVersionTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Create Component Content directory and link files inside it.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          File the File = new File (f, merged Version):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               File f = new File(myFile, (String)myList[m]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dependency dep = (Dependency)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for(int m=0; m<myList.length; m++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                createFiles(dep, theFile);
                                                                                                                                                                                                                                                                                                                                                                                                       File myFile = new File(this.pathName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( v.contains(f.getName()) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( !theFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( theFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String[] myList = myFile.list();

    * the name is new version number

                                                                                                                                                                                                                     * @param v : vector of step names
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.depHashtable.get( f.getName() );
                                                                                                                                                                                                                                                                                               public void checkPath(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            theFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  theFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(f.isDirectory()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( myFile.exists()) {
                                                                                                                                                                                                                                                                                                                                                                           if( v.size() > 0){
```

```
* oldVersionControl: VersionControl object, keeping the content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                           * EHL Hashtable: stores all EHL objects which retrieve from loop.cfg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               setTitle("Automated Version Control - Open Step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // parse your Java file into its visual environment.
                                                                * pathName: current path name, e.g. C:\Cases\projectName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protected VersionControl oldVersionControl = null;
                                                                                                                                                                                                                                                                                                                                                                                    public Hashtable EHLHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //{INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public AVCOpenStepFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Creating AVCOpenStepFrame
                                                                                                                                                                    public String pathName;
                                                                                                    D:\Cases\projectName, ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of current.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Version");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Implement Cases Title where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Automatic Version Control - Open existing version number for all steps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public class AVCOpenStepFrame extends com.sun.java.swing.JFrame
DataOutputStream depSecondary = new DataOutputStream(
                                                                                                    depSecondary.writeBytes(dep.getSecondaryInput());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Implements interface I_AVCOpenStep
                                                                                                                                                                                                                                                                                                                                                  debug("dep_IOException: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    implements CasesTitle, I_AVCOpenStep
                                                              if( depSecondary != null ){
                                                                                                                                                                                                          depSecondary.close();
                                                                                                                                                                       depSecondary.flush();
                                                                                                                                                                                                                                                                                                            catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 import com.sun.java.swing.*;
                                                                                                                                                                                                                                            fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          in the current project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                import java.awt.event.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      import java.util.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         import java.io.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      package Cases;
```

getContentPane().setLayout(null); setSize(450,290); setVisible(false);

JLabel9.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel9.setText("Evolution Process"); getContentPane().add(JLabel9); JLabel9.setForeground(java.awt.Color.black); JLabel9.setBounds(5,70,110,22); JLabel10.setHorizontalAlignment(com.sun.java.swing.SwingConst ants.RIGHT);

JLabel10.setText("Step Type"); getContentPane().add(JLabel10); JLabel10.setForeground(java.awt.Color.black); JLabel10.setBounds(5,110,110,22); JLabel12.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

ILabel12.setText("Step Version");
getContentPane().add(JLabel12);
JLabel12.setForeground(java.awt.Color.black);
JLabel12.setBounds(5,150,110,22);
OKButton.setText("OK");
OKButton.setActionCommand("jbutton");
getContentPane().add(OKButton);
OKButton.setBounds(148,210,75,22);
cancelButton.setText("Cancel");
cancelButton.setActionCommand("jbutton");
getContentPane().add(cancelButton);
cancelButton.setBounds(226,210,75,22);
getContentPane().add(stepIDComboBox);
stepIDComboBox.setBounds(117,110,300,22);

JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

projectLabel.setVerticalAlignment(com.sun.java.swing.SwingCon JLabell.setVerticalAlignment(com.sun.java.swing.SwingConstant JLabel1.setFont(new Font("Dialog", Font.BOLD, 18)); projectLabel.setFont(new Font("Dialog", Font.BOLD, projectLabel.setForeground(java.awt.Color.black); versionComboBox.setBounds(117,150,300,22); stepIDComboBox.addItemListener(ISymItem); cancelButton.addActionListener(ISymAction); EHLComboBox.addItemListener(ISymItem); ILabel1.setForeground(java.awt.Color.black); SymAction ISymAction = new SymAction(); OKButton.addActionListener(ISymAction); EHLComboBox.setBounds(117,70,300,22); getContentPane().add(versionComboBox) Label1.setText("Open Step Version: "); getContentPane().add(EHLComboBox); SymItem ISymItem = new SymItem(); projectLabel.setBounds(187,6,200,25) projectLabel.setText("Project Label"); getContentPane().add(projectLabel); Label1.setBounds(0,6,180,25); getContentPane().add(JLabel1); // REGISTER LISTENERS //{INIT_MENUS stants.BOTTOM); s.BOTTOM); 18);

```
(new AVCOpenStepFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                      debug("ClassNotFoundException_currentLoop: "+ex);
                                                                                                       this.setInitialFrame(oldVersionControl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public AVCOpenStepFrame(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          static public void main(String args[])
VersionControl oldVersionControl
                                                                                                                                                                                                                                                                                                                                                      debug("IOException_currentIn: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                     catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void setVisible(boolean b)
                                                                     if( oldVersionControl != null ){
                                   (VersionControl)currentIn.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void addNotify()
                                                                                                                                                                                                                                                                                                              catch( IOException e ){
                                                                                                                                                                                                           currentIn.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this();
                                                                                                                                                                                                                                               fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ObjectInputStream currentIn = new ObjectInputStream( fileInput );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ObjectInputStream loopIn = new ObjectInputStream( fileInput );
                                 * To be called when Open Step Version Menu Item of CasesFrame

    Retrieving VersionControl and EHL object from current.cfg and

                                                                                                                                                                                                         public AVCOpenStepFrame( String dirName, String pathName ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.setLoopNameComboBox( loopVector );
                                                                                                                                                                                                                                                                                                                                                                                                                     FileInputStream fileInput = new FileInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FileInputStream fileInput = new FileInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           debug("ClassNotFoundException_loop: "+ex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               oopVector = (Vector)loopIn.readObject();
                                                                                                                                                                                                                                                                            this.projectLabel.setText( dirName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vector loopVector = new Vector()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  debug("IOException_loop: "+e);
                                                                                                                                                                                                                                                                                                                  this.pathName = pathName;
                                                                     receives the event from user.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   f( loopVector.size() > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.pathName+"\\current.vsn" );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if( currentIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.pathName+"Woop.cfg")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ){ | loopIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         loopIn.close();
                                                                                                                                          loop.cfg files
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       try(
```

```
if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                          public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Allows a user to select all the available Evolution processes in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EHL ehl = (EHL)this.EHLHashtable.get( selectedItem );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EHLComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     int selectedIndex = this.EHLComboBox.getSelectedIndex();
                                                                                                         class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if (object == stepIDComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param event, occur when user select Evolution Process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( this.EHLHashtable.containsKey( selectedItem ) ){
                                                                                                                                                                                                                                                                                                         Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vector tokenizeVector = new Vector();
                                                                                                                                                                                                                                                                                                                                           if (object == EHLComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         StringTokenizer st = new StringTokenizer(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stepIDComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String selectedItem = (String)event.getItem();
                                                                                                                                                                                                                                                                                                                                                                                                                             EHLComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (String)ehl.getEHLPath(), "," );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( selectedIndex > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public void
  dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       compopox
                                                                                                                                                                                                                                    event)
                                    String currentStep = (String)this.stepIDComboBox.getSelectedItem();
String currentLoop = (String)this.EHLComboBox.getSelectedItem();
                                                                                                                                                                                                                               VersionControl vc = new VersionControl( currentLoop, currentStep,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ObjectOutputStream currentOut= new ObjectOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cancelButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                        FileOutputStream fileOutput = new FileOutputStream(
                                                                                                                                                                                                                                                                       currentVersion, currentStatus );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param event, occur when user press Cancel button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          debug("IOException_currentOut: "+e1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     currentOut.writeObject(vc);
                                                                                                                 this.versionComboBox.getSelectedItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( currentOut != null ){
                                                                            String currentVersion = (String)
                                                                                                                                                                                                                                                                                                                                                                                                                             this.pathName+"\\current.vsn" );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 currentOut.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      currentOut.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Exit AVCOpenStepFrame
                                                                                                                                                      String currentStatus = "";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     catch( IOException e1 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fileOutput );
```

```
public void setLoopNameComboBox( Vector loopVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.EHLComboBox.addItem(ehl.getEHLName());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.EHLHashtable.put( ehl.getEHLName(), ehl );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * @param loopVector: vector of evolution processes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Adding evolution processes into EHLComboBox
                                               this.versionComboBox.removeAlIItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EHL ehl = (EHL)loopVector.elementAt( i );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EHLComboBox.addItem(PROCESS_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @param stepVector: vector of step ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for( int i=0; i < loopVector.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Adding step ID into stepIDComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.EHLHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                   public void debug( String string ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EHLComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                System.out.println( string );
                                                                                                                                                                                                                                                                                                                                    * @param string: the output string
     else if( selectedIndex == 0)
                                                                                                                                                                                                                                                                                            * Short cut to print the output
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    //set step Hashtable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     stepIDComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Allows a user to select all the available step ID in the combobox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   int selectedIndex = this.stepIDComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            File existedDir = new File( this.pathName, selectedStep );
                                       tokenizeVector.addElement( st.nextToken() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            String selectedStep = ((String)event.getItem()).trim()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.setVersionComboBox(versionVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       versionVector.addElement( fileList[i] );
                                                                                                                         this.setStepComboBox( tokenizeVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @param event, occur when user select step ID
                                                                                                                                                                                                                                                                                                                               this.versionComboBox.removeAlIItems();
                                                                                                                                                                                                                                                                                       this.stepIDComboBox.removeAllItems();
while( st.hasMoreTokens() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for( int j=0; j<fileList.length; j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vector versionVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String[] fileList = existedDir.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( existedDir.isDirectory() ){
                                                                                                                                                                                                                                                else if( selectedIndex == 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if( selectedIndex > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void
```

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this.versionComboBox.setSelectedItem(vc.getCurrentVersion());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.stepIDComboBox.setSelectedItem(vc.getCurrentStep());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.EHLComboBox.setSelectedItem(vc.getCurrentLoop());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void setVersionComboBox( Vector versionVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Adding version numbers to currentStepComboBox and
                                                                                             this.stepIDComboBox.addItem(STEP_TYPE_TITLE)
                                                                                                                                                                                                                                                                                             String stepID = (String)stepVector.elementAt( i );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param versionVector: vector of version numbers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String vv = (String)versionVector.elementAt( i );
                                                                                                                                                                                                                                                                                                                                            this.stepIDComboBox.addItem( stepID.trim() );
public void setStepComboBox( Vector stepVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Adding version numbers to versionComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.versionComboBox.addItem(vv.trim());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param vc : vector of VersionControl objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void setInitialFrame( VersionControl vc){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(this.EHLComboBox.getItemCount() > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.setVersionComboBox( versionVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for( int i=0; i < versionVector.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.versionComboBox.removeAlIItems();
                                              this.stepIDComboBox.removeAllItems();
                                                                                                                                                                                                                                                 for( int i=0; i< stepVector.size(); i++ ){
                                                                                                                                                                                           Vector versionVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mergedStepComboBox
```

package Cases;

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* Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                            * Automatic Version Control - Evolution History Splitting: to split the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public class AVCSplittingFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * pathName : current path name, e.g. C:\Cases\projectName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public String pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Implements interface I_AVC
                                                                                                                                                                                                                                                                                                                                                              versions into new version.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mplements CasesTitle, I_AVC
                                                                                                                                import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           D:\Cases\projectName, ...
                                                                    import java.awt.event. *;
                                   mport java.awt.*;
                                                                                                   import java.util.*;
                                                                                                                                                               mport java.text.*;
mport java.io.*;
                                                                                                                                                                                                                                                                                                                                      existing
```

**/

```
setTitle("Automated Version Control - Evolution History
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                           * EHLHashtable : stores all EHL objects which retrieve from loop.cfg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                              * depHashtable: stores all Dependency objects which retrieve from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // parse your Java file into its visual environment
* versionVector: stores all version numbers of current project
                                                                                                                                                                                                                                                                                                                                      public Hashtable EHLHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public Hashtable depHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   getContentPane().setLayout(null);
                                                                                public Vector versionVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // (INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public AVCSplittingFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setSize(480,280);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Creating AVCSplittingFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dependency.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and initializes
```

```
JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta
JLabel9.setHorizontal Alignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                currentLabel.setHorizontalAlignment(com.sun.java.swing.SwingC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JLabel1.setVerticalAlignment(com.sun.java.swing.SwingConstant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              currentStepComboBox.setBounds(164,110,300,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                newVersionTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    newVersionTextField.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        currentLabel.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               newVersionTextField.setBounds(164,150,300,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        getContentPane().add(currentStepComboBox)
                                                                                                                                                                                                                                                                                                                                                                                 currentLabel.setText("Current Step Version");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(newVersionTextField);
                                                                                                                                                                       JLabel9.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cancelButton.setActionCommand("jbutton");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OKButton.setActionCommand("jbutton");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cancelButton.setBounds(241,210,75,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  newVersionTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                currentLabel.setBounds(15,110,145,22);
                                                                                   ILabel9.setText("Evolution Process");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OKButton.setBounds(163,210,75,22);
                                                                                                                                                                                                                                                                                                                                                                                                                               getContentPane().add(currentLabel)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 getContentPane().add(cancelButton)
                                                                                                                                                                                                               ILabel9.setBounds(15,70,145,22)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getContentPane().add(OKButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cancelButton.setText("Cancel");
                                                                                                                              getContentPane().add(JLabel9)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OKButton.setText("OK");
                                                                                                                                                                                                                                                                                                                                         onstants.RIGHT):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              s.BOTTOM);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nts.RIGHT);
                                           nts.RIGHT);
```

```
public AVCSplittingFrame(String pathName, String dirName ){
                                                                                                                                                            * Retrieving Dependency and EHL object from dependency.cfg and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ObjectInputStream loopIn = new ObjectInputStream( fileInput );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ObjectInputStream dep = new ObjectInputStream( fileInput );
                                      * To be called when Evolution History Splitting Menu Item of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.depHashtable = (Hashtable) dep.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.setLoopNameComboBox( loopVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FileInputStream fileInput = new FileInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FileInputStream fileInput = new FileInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   debug("ClassNotFoundException_Dep: "+ex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     loopVector = (Vector)loopIn.readObject();
                                                                                                                                                                                                                                                                                                                                                                  this.projectLabel.setText( dirName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vector loopVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 debug("IOException_Dep: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                         this.pathName = pathName;
                                                                                                                        * receives the event from user.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.pathName+"\\dependency.cfg");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( loopVector.size() > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.pathName+"\loop.cfg");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ){ | IloopIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if dep != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dep.close();
                                                                                                                                                                                                     'loop.cfg files
                                                                                  CasesFrame
                                                                                                                                                                                                                                            projectLabel.setVerticalAlignment(com.sun.java.swing.SwingCon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 newStepVersionButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            newStepVersionButton.setActionCommand("New Step
                                                                                                                      JLabel1.setFont(new Font("Dialog", Font.BOLD, 18));
                                                                                                                                                                                                                                                                                                                                                                                                                                               projectLabel.setFont(new Font("Dialog", Font.BOLD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   newStepVersionButton.setText("New Step Version");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  currentStepComboBox.addItemListener(ISymItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  newStepVersionButton.setBounds(25,150,135,22);
                                                                                                                                                                                                                                                                                                                                                                                                    projectLabel.setForeground(java.awt.Color.black);
JLabel1.setText("Evolution History Splitting:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getContentPane().add(newStepVersionButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cancelButton.addActionListener(ISymAction);
                                                                                  JLabel1.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EHLComboBox.addItemListener(1SymItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EHLComboBox.setBounds(164,70,300,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OKButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              getContentPane().add(EHLComboBox);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SymItem ISymItem = new SymItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               projectLabel.setBounds(250,6,230,25);
                                                                                                                                                                                                                                                                                                                            projectLabel.setText("Project Label");
                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(projectLabel);
                                                                                                                                                               JLabel1.setBounds(0,6,250,25);
                                         getContentPane().add(JLabel1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //{ INIT_MENUS
                                                                                                                                                                                                                                                                                     stants.BOTTOM);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Version");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18);
```

```
setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                // Adjust size of frame according to the insets and menu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JComboBox currentStepComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JTextField newVersionTextField = new
                                                                                                                                                                                                                                                                                              com.sun.java.swing.JMenuBar menuBar =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JButton cancelButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JLabel currentLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JButton OKButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JLabel JLabel 1 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               com.sun.java.swing.JLabel JLabel9 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  insets.bottom + size.height + menuBarHeight);
                                                                                                                                                                                                                                                                                                                                                                                                                        menuBarHeight =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   boolean frameSizeAdjusted = false;
                                                                                                                                frameSizeAdjusted = true;
                                                                                                                                                                                                                                                             Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                           int menuBarHeight = 0;
                                                             if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //{ DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                            if (menuBar!= null)
super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                     menuBar.getPreferredSize().height;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JTextField();
                                                                                                      return;
                                                                                                                                                                                                                                                                                                                            getRootPane().getJMenuBar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                  bar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (new AVCSplittingFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                           debug("ClassNotFoundException_loop: "+ex);
                                                                                                                                                                                                                                                                                                                                                                                                                        public AVCSplittingFrame(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dimension size = getSize();
                                                                                                                                                                                                                                                           catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public void setVisible(boolean b)
                                                                                                                                                                                           debug("IOException_loop: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void addNotify()
                                                                                                                                                           catch( IOException e ){
                                                                                                fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (b)
                                                               loopIn.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      addNotify.
```

```
newStepVersionButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Create new version number and the default version is 1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( this.currentStepComboBox.getItemCount() == 0 ){
                                                                                                                                                                                                                                                                                                                                   cancelButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * @param event, occur when user press New Version button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                       * @param event, occur when user press Cancel button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( (EHLComboBox.getItemCount() > 0) &&
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  newVersionTextField.setText("1.1");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (EHLComboBox.getSelectedIndex() > 0) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           createVersionNumber();
                                                                                                                                                                                  * Exit AVCSplittingFrame
setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                         setVisible(false);
                                                                                                                                                                                                                                                                                             public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void
                                     dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                               dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cancelButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Create new directory with new version number for all steps of the
                                                                                                                                                                                                                                                                                                                                                                                                                                            class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 else if (object == newStepVersionButton)
                                                                                                                                                 com.sun.java.swing.JButton newStepVersionButton = new
                                                                      com.sun.java.swing.JComboBox EHLComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OKButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Object object = event.getSource(); if (object == OKButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else if (object == cancelButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              newStepVersionButton_actionPerformed(event);
com.sun.java.swing.JLabel projectLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * @param event, occur when user press OK button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         checkPath(this.versionVector);
                                                                                                           com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                    //{DECLARE_MENUS
//}
                                                                                                                                                                               com.sun.java.swing.JButton();
                                   com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               event)
```

```
currentStepComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                  * @param event, occur when user select currentStepComboBox
                                                                                                                                                                                                       * Allows a user to select all the available steps in the combobox
                                                                                                                                                                                                                                                                                                                                                                                                                                                               if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        StringTokenizer st = new StringTokenizer( string, "," );

    public Vector tokenizeVector(String string){

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   v.addElement( st.nextToken() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @return v : vector of string without ","
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void debug( String string ){
   System.out.println( string );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       newVersionTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     while( st.hasMoreTokens() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param string: tokenized string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @param string: the output string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Short cut to print the output
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Tokenizing a string
                                                                                                                                                                                                                                                                                                                                    public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return v;
public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Allows a user to select all the available Evolution processes in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EHL ehl = (EHL)this.EHLHashtable.get( selectedItem );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EHLComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         int selectedIndex = this.EHLComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                               if (object == currentStepComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @param event, occur when user select Evolution Process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( this.EHLHashtable.containsKey( selectedItem ) ){
                                                                                                                                                                                                                                                                                       else if (object == EHLComboBox)
                                                                                                                          Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.setVersionComboBox( this.versionVector);
                                                                                                                                                                                                                                                  currentStepComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.currentStepComboBox.removeAlIItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String selectedItem = (String)event.getItem();
                                                                                                                                                                                                                                                                                                                                                                            EHLComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.newVersionTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.versionVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tokenizeVector((String)ehl.getEHLPath());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           else if( selectedIndex == 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.versionVector =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( selectedIndex > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         compopox
```

```
JOptionPane.showMessageDialog(this, stepVersion+" version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for( int i=0; i<currentStepComboBox.getItemCount(); i++ ){
                                         * Create new version number for all steps in the current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String s = (String)currentStepComboBox.getItemAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else if( i==currentStepComboBox.getItemCount()-1){
                                                                                                                                                                                                                                                                                                                      ((String)currentStepComboBox.getSelectedItem()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        newVersionTextField.setText(stepVersion);
                                                                                                                                                                                                                                                                                                                                                                                                                                                String sub2 = current.substring(index+1);
                                                                                                                                                                                                                                                                                                                                                                                                       String sub1 = current.substring(0, index);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String stepVersion = variantMax+"."+i2;
                                                                                                                                                                                                                                           int variantMax = findMaxVariant() + 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Error Message"
                                                                                * new version = highest version + 1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                int i2 = Integer.parseInt(sub2)+1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         int i1 = Integer.parseInt(sub1)+1;
                                                                                                                                                                                                                                                                                                                                                                  int index = current.indexOf(".");
                                                                                                                                                           public void createVersionNumber(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( s.equals(stepVersion)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            already exists in this project!",
                                                                                                                                                                                                                                                                                       String current =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        catch(Exception e){}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.currentStepComboBox.addItem(((String)list[i]).trim());
public void setLoopNameComboBox( Vector loopVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void setVersionComboBox( Vector versionVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * @param versionVector: vector of version numbers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Adding version numbers to currentStepComboBox
                                                                                                                                                                                                                                                                                     EHL ehl = (EHL)loopVector.elementAt( i );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.currentStepComboBox.removeAlIItems();
                                                                             EHLComboBox.addItem(PROCESS_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.EHLHashtable.put( loopName, ehl );
                                                                                                                                                                                                                                                                                                                              String loopName = ehl.getEHLName();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EHLComboBox.addItem(loopName);
                                                                                                                                                                                                                                                for( int i=0; i < loopVector.size(); i++){
                                                                                                                                                                   this.EHLHashtable = ncw Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               File aFile = new File(this.pathName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for( int i=0; iiii++){
                                            EHLComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (String)versionVector.elementAt(0));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String[] list = aFile.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( aFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                              //set step Hashtable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( list.length > 0 ){
```

* @param loopVector: vector of evolution processes

* Adding evolution processes into EHLComboBox

```
File compContent = new File(theFile, "Component Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                              BufferedWriter bw = new BufferedWriter (fileWriter);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DataOutputStream depSecondary = new DataOutputStream(
                                                                                                         //Create Component Content subdirectory in thte new step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DataOutputStream depPrimary = new DataOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                           FileWriter fileWriter = new FileWriter( newFile );
                                                                                                                                               //and include txt.link, data.link, url.link, and caps.link
                                                                                                                                                                                                                                                                                          for( int i=0; i<LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   depPrimary.writeBytes(dep.getPrimaryInput())
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FileOutputStream(theFile.getAbsolutePath()+"\\input.p");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FileOutputStream(theFile.getAbsolutePath()+"\\input.s");
public void createFiles( Dependency dep, File theFile)(
                                                                                                                                                                                                                                                                                                                                    File newFile = new File(compContent,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FileOutputStream fileOutput = new
                                                                                                                                                                                                                                                         if( compContent.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( depSecondary != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( depPrimary != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fileWriter.close();
                                                                                                                                                                                                                          compContent.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                depPrimary.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        depPrimary.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fileOutput = new
                                                                                                                                                                                                                                                                                                                                                                       LINK_FILE_NAMES[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bw.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bw.close();
                                       if( dep != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fileOutput);
* Go to each step (e.g., s-I, s-C, s-R, ...) and create new directory with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param dep: Dependency object of theFile and get input.p and
                                                                                                                                                                                  String mergedVersion = this.newVersionTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Create Component Content directory and link files inside it.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  File the File = new File(f, merged Version);
                                                                                                                                                                                                                                                                                                                                                                                                           File f = new File(myFile, (String)myList[m]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dependency dep = (Dependency)
                                                                                                                                                                                                                                                                                                                                                                       for(int m=0; m<myList.length; m++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param theFile: current version directory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        createFiles(dep, theFile);
                                                                                                                                                                                                                                                    File myFile = new File(this.pathName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if( v.contains(f.getName()) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( !theFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( theFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                  String[] myList = myFile.list();
                                   * the name is new version number
                                                                    * @param v : vector of step names
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.depHashtable.get( f.getName() );
                                                                                                                                             public void checkPath(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 theFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          theFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                            if(f.isDirectory()){
                                                                                                                                                                                                                                                                                              if( myFile.exists()) {
                                                                                                                                                                                                                        if( v.size() > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           input.s files
```

depSecondary.writeBytes(dep.getSecondaryInput());

```
mport symantec.itools.awt.util.Calendar;
                              catch(Exception e){}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       StepContentFrame scf = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             super(parent);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              import com.sun.java.swing. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         private int index = 0;
                                                                                                                                                  return variantMax;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               import java.text.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             import java.util.*;
                                                                                                                                                                                                                                                                                                                                                                                           package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              string
                                                                                                                                                                                                                                                                                                                               * @return variantMax : the maximum variant number of this process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  variantMax = Integer.parseInt((String)v.elementAt(0));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Math.max(variantMax,Integer.parseInt((String)v.elementAt(j)));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String sub1 = (s.substring(0,index)).trim();
                                                                                                                                                                                                                                                                                                  * Find the maximum variant number of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for(int j=1; j<v.size(); j++){
                                                                                                                                                  debug("dep_IOException: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                  File aFile = new File(this.pathName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for( int i=0; iiii++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         int index = s.indexOf(".");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (String)versionVector.elementAt(0));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v.addElement(sub1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     f(!v.contains(sub1)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String[] list = aFile.list();
                              depSecondary.close();
depSecondary.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             variantMax =
                                                                                                                                                                                                                                                                                                                                                                                        public int findMaxVariant(){
                                                                                                                catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String s = list[i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if( aFile.isDirectory() ){
                                                          fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( v.size() > 0 ) 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( list.length > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                        int variantMax = 0;
```

```
* CalendarDialog: display the calendar and return the selected day as a
                                                                                                                                                                                                               public class CalendarDialog extends com.sun.java.swing.JDialog
                                                                                                                                                                           public CalendarDialog(Frame parent)
```

```
* Receive the event from Deadline, Earliest Start Time, and Finish Time
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       setLocation ((Toolkit.getDefaultToolkit().getScreenSize().width-\\
                                                                                                                                                                         public CalendarDialog(StepContentFrame scf, String currentDate, int
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Toolkit.getDefaultToolkit().getScreenSize().height -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.getSize().height) / 2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.getSize().width) / 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           catch(Exception e){System.out.println(e);}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public CalendarDialog(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                         theCalendar.setDate(currentDate);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public CalendarDialog()
                                                                                                       * from StepContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this();
                                                                                                                                                                                                                                                                                                                  this.index = index;
                                                                                                                                                                                                                                                                                   this.scf = scf;
                                                                                                                                                                                                                                                  this();
                                                                                                                                                                                                                                                                                                                                                                                          try{
                                                                                                                                                                                                          // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the Calendar. set Background (java. awt. Color. light Gray);
                                                                    // components to the visual environment. It instantiates
// This code is automatically generated by Visual Cafe
                                                                                                                                        // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              heCalendar.setFont(new Font("Dialog", Font.BOLD
                                                                                                                                                                                                                                                                              // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cancelButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cancelButton.setActionCommand("Cancel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OKButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cancelButton.setBounds(109,200,73,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OKButton.setActionCommand("OK");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the Calendar. set Bounds (5,15,210,170);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      getContentPane().add(cancelButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OKButton.setBounds(37,200,73,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getContentPane().add(theCalendar);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().add(OKButton);
                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cancelButton.setText("Cancel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    //{REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OKButton.setText("OK");
                                                                                                                                                                                                                                                                                                               //{INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                   setTitle("Calendar");
                                                                                                                                                                                                                                                                                                                                                                                                                                                        setSize(220,250);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                    setModal(true);
                                                                                                                                                                         syntax that matches
                                                                                                                                                                                                                                                unable to back
                                   when you add
                                                                                                     and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10);
```

```
public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                             cancelButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Return the selected day to the specific textfield which is respectively
                                                                                                                                                                                                                                                                                                                                                      OKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     void OKButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.scf.finishTimeTextField.setText(theCalendar.getDate());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.scf.earliestSTTextField.setText(theCalendar.getDate());
                                                                                class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.scf.deadlineTextField.setText(theCalendar.getDate());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * If index = 2: set the selected day to finishTimeTextField
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * If index = 0: set the selected day to earliestSTTextField
                                                                                                                                                                                                                                                                             Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * If index = 1: set the selected day to deadlineTextField
                                                                                                                                                                                                                                                                                                                                                                                           else if (object == cancelButton)
                                                                                                                                                                                                                                                                                                          if (object == OKButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * @param event: button action event
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else if( this.index == 2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if( this.index == 1 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if this index == 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( this.scf != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * the selected button
                                                                                                                                                                                                        event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                      // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // Adjust size of frame according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    symantec.itools.awt.util.Calendar theCalendar = new
                                                                                                                                                                                            (new CalendarDialog()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               com.sun.java.swing.JButton cancelButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JButton OKButton = new
                                                                                                                static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //{ | DECLARE_CONTROLS
super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        symantec.itools.awt.util.Calendar();
                                                                                                                                                                                                                                                                                                          public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              insets.bottom + size.height);
                                                                                                                                                                                                                                                                                                                                                                                                                           addNotify.
```

```
contents in the project
                                                                                                                                                                                                                    CasesTitle, I_Cases
                                                                                                                                                                                                                                                                                                                directory is Cases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in the project
                                                                                                                                                                       void cancelButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              import com.sun.java.swing.preview.JFileChooser;
                                                                                                                     * Exit CalendarDialog and return null
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * The main CASES frame.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                import java.awt.event.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 import JobSchedule.*;
setVisible(false);
                                                                                                                                                                                                                                        setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          import java.util.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      import java.io.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     package Cases;
                                                                                                                                                                                                                                                                    dispose();
                           dispose();
                                                                                                                                                                                                 event)
```



```
* CasesFrame: main frame of Cases. It is the main frame to connect to all
                                                                                                                                 * Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                      public class CasesFrame extends com.sun.java.swing.JFrame implements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * fileChooser: instantiate new JFileChooser with the current
                                                                                                                                                                                                                                                                     public JFileChooser fileChooser = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JFileChooser(CASESDIRECTORY);
                                                                                                                                                                                  * Implements interface I_Cases
                                              * frames in Cases system.
```

* projectAtomicVector: a vector contains all atomics in the project. , public Vector projectAtomicVector = new Vector(); * It is used in Job Schedule.

* projectStepContentVector: a vector contains all StepContent objects

* It is used in Job Schedule

public Vector projectStepContentVector = new Vector();

* stepContentPathVector: a vector containts the paths of all step

```
// what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getContentPane().setForeground(java.awt.Color.blue);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      createProjectMenuItem.setText("Create Project");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    projectMenu.setActionCommand("Hypergraph");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            projectMenu.setMnemonic((int)P);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   casesMenuBar.add(projectMenu);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          //$$ casesMenuBar.move(0,348);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  projectMenu.setText("Project");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setJMenuBar(casesMenuBar);
                                                                                                                                                        public Vector job_queue2 = new Vector();
                                                                                                                 public Vector job_queue1 = new Vector();
                                                                         public Vector job_queue = new Vector();
                                                                                                                                                                                             public Vector job_pool = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                //{ | INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               setTitle("CASES");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setSize(550,200);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   setVisible(false);
                                    public Vector person_queue;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                public CasesFrame()
//Job Schedule Variables
                                                                                                                                                                                                                                     public int personid=0; .
                                                                                                                                                                                                                                                                                                                                                                                        * Create CasesFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        syntax that matches
                                                                                                                                                                                                                                                                       public int ctr1=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and initializes
                                                                                                                   * personnel Vector: a vector contains all Personnel objects in the project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * pathName: the absolute path of the current project, e.g. C:\Cases\C4I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * e.g. Edit, Decompose, Component Content, Step Content, or Trace
                                                                                                                                                                                                                                                                                                                                                 * scheduleAtomicVector: a vector contains all StepContent objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * title: a title of the current menu item under SPIDER menu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * projectName: a current project name, e.g. C41, C31, ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public Vector scheduledAtomicVector = new Vector();
    public Vector stepContentPathVector = new Vector();
                                                                                                                                                                                                                                     public Vector personnelVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public String projectName = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public VersionControl vc = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * vc : a VersionControl object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public String pathName = null;
                                                                                                                                                        * It is used in Job Schedule
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * It is used in Job Schedule
                                                                                                                                                                                                                                                                                                                                                                                                                           * status are "Scheduled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public String title = null;
```

AVCSplittingMenuItem.setActionCommand("New	AVCSplittingMenuItem.setMnemonic((int)'S'); AVCMenu.add(AVCSplittingMenuItem); AVCMergingMenuItem.setText("Evolution History	AVCMergingMenuItem.setActionCommand("New	AVCMergingMenuItem.setMnemonic((int)'M'); AVCMenu.add(AVCMergingMenuItem); spiderMenu.setText("SPIDER");	spiderMenu.setActionCommand("Editor");	casesMenuBar.add(spiderMenu); editMenuItem.setText("Edit");	editivenutem.setActionCommand(jmenutiem); editMenuItem.setMnemonic((int)E); spiderMenn.add(editMenuItem);	decomposeMenuItem.setText("Decompose"); decomposeMenuItem.setActionCommand("imenuItem"):	decomposeMenuItem.setMnemonic((int)D'); spiderMenu add/decomposeMenuItem):	spiderMenu.add(JSeparator4); componentContentMenuItem.setText("Component		componentContentMenuItem.setActionCommand("jmenuItem");	componentContentMenuItem.setMnemonic((int)'C'); spiderMenu.add(componentContentMenuItem);	stepContentMenuItem.setText("Step Content");	<pre>stepContentMenuItem.setActionCommand("jmenuItem"); stepContentMenuItem.setMnemonic((int)'S');</pre>	spiderMenu.add(stepContentMenuItem);	spiderMenu.add(Joeparator2); traceMenuItem.setText("Trace");	<pre>traceMenuItem.setActionCommand("jmenuItem"); traceMenuItem.setMnemonic((int)T');</pre>
Sten").	Merging");	Sten"):								Content");	o	-	-		,		
createProjectMenuItem.setActionCommand("Create	createProjectMenuItem.setMnemonic((int)'C'); projectMenu.add(createProjectMenuItem); openProjectMenuItem.setText("Open Project"); openProjectMenuItem.setActionCommand("Open	onenProjectMenuItem setMnemonic((int)!O)'	projectMenu.add(openProjectMenuItem); deleteProjectMenuItem.setText("Delete Project"); deleteProjectMenuItem setActionCommand("Delete	deleteProjectMenuItem setMnemonic((int)T)	projectMenu.add(deleteProjectMenuItem); projectMenu.add(Geparator1);	exitivenultem.setlext(Exit); exitMenultem.setActionCommand("Exit"); exitMenultem setMnemonic((int)"X").	projectMenu.add(exitMenuItem); AVCMenu sefText("Automated Version Control");	AVCMenu.setActionCommand("Automated Version	AVCMenu.setMnemonic((int)'A'); casesMenuBar.add(AVCMenu);	AVCCreationMenuItem.setText("Create Step Version"); AVCCreationMenuItem.setActionCommand("New		AVCCreationMenuItem.setMnemonic((int)'C'); AVCMenu.add(AVCCreationMenuItem):	AVCOpenStepMenuItem.setText("Open Step Version");	AVCOpenStepMenultem.setActionCommand("Open	AVCOpenStepMenuItem.setMnemonic((int) O);	AVCMenu.add(AVCOpenStepMenuItem); AVCMenu.add(JSeparator3);	AVCSplittingMenuItem.setText("Evolution History
Project").		Project");		Project");				Control"):	()		Step");			Step"):	·		Splitting");

personnelDataMenu.add(addPersonnelMenuItem); editPersonnelMenuItem.setText("Edit"); editPersonnelMenuItem.setActionCommand("Edit"); editPersonnelMenuItem.setMnemonic((int)E'); personnelDataMenu.add(editPersonnelMenuItem); deletePersonnelMenuItem.setText("Delete"); deletePersonnelMenuItem.setActionCommand("Delete"); deletePersonnelMenuItem.setMnemonic((int)'D'); personnelDataMenu.add(deletePersonnelMenuItem); jobScheduleMenu.setText("Job Schedule"); jobScheduleMenu.setActionCommand("Tools"); jobScheduleMenu.setActionCommand("Tools");	age Lal	nstants.CENTER); getContentPane().add(imageLabel); imageLabel.setBackground(java.awt.Color.blue); imageLabel.setBounds(18,35,125,125); //\$\$ JPopupMenu1.move(24,348); JLabel2.setText("Computer-Aided Software Evolution getContentPane().add(JLabel2); JLabel2.setBackground(java.awt.Color.blue); JLabel2.setForeground(java.awt.Color.blue); JLabel2.setForeground(java.awt.Color.blue); JLabel2.setForeground(java.awt.Color.blue); JLabel2.setForeground(java.awt.Color.blue); JLabel2.setForeground(java.awt.Color.blue);
- 4 ·	Editor"); Database");	nstants.CENTER); System"); Font.BOLDIFont.I
spiderMenu.add(traceMenuItem); toolsMenu.setText("Tools"); toolsMenu.setActionCommand("Tools"); toolsMenu.setMnemonic((int)T'); casesMenuBar.add(toolsMenu); textEditorMenuItem.setText("Text Editor"); textEditorMenuItem.setActionCommand("Text Editor"); textEditorMenuItem.setActionCommand("Text Editor"); toolsMenu.add(textEditorMenuItem); MSWordMenuItem.setActionCommand("Step	MSWordMenuItem.setMnemonic((int) W); toolsMenu.add(MSWordMenuItem); MSExcelMenuItem.setText("MS Excel"); MSExcelMenuItem.setActionCommand("Component MSExcelMenuItem.setActionCommand("Component toolsMenu.add(MSExcelMenuItem); toolsMenu.add(JSeparator5); netscapeMenuItem.setText("Netscape"); netscapeMenuItem.setActionCommand("Netscape"); netscapeMenuItem.setActionCommand("Netscape"); coolsMenu.add(netscapeMenuItem); capsMenuItem.setText("CAPS");	capsMenuItem.setActionCommand("CAPS"); capsMenuItem.setMnemonic((int)C'); toolsMenu.add(capsMenuItem); toolsMenu.add(JSeparator6); personnelDataMenu.setText("Personnel Data"); personnelDataMenu.setActionCommand("personnel personnelDataMenu.setMnemonic((int)P'); toolsMenu.add(personnelDataMenu); addPersonnelMenuItem.setText("Add"); addPersonnelMenuItem.setActionCommand("Add"); addPersonnelMenuItem.setActionCommand("Add");
Database"):	Database");	Data");

```
AVCSplittingMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FileInputStream imageFile = new FileInputStream("cases.gif");
                                                                                                                                                                   * Check and Create Cases and stakeholder directory
                                                                                                                                                                                                                                                                                              String[] fileList = CASESDIRECTORY.list();
                                                                                                                                                                                                                                                 if( CASESDIRECTORY.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if(!STAKEHOLDER.isDirectory()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CASESDIRECTORY.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                               else if( fileList.length == 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     [mageIcon icon = new ImageIcon(data);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STAKEHOLDER.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             setOpenDelete( false );
                                                                                                                                                                                                                                                                                                                                                                                  setOpenDelete( true );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         setOpenDelete( false );
                                                                                                                                                                                                                                                                                                                                       if(fileList.length>0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Adding cases.gif logo to CasesFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             menuSetEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     byte[] data = new byte[3000];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                drawlcon();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        imageFile.read(data);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void drawIcon(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AVCCreationMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AVCMergingMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       editPersonnelMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               addPersonnelMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  createProjectMenuItem.addActionListener(ISymAction)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   deleteProjectMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      stepContentMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        openProjectMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             decomposeMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      jobAssignMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           componentContentMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      textEditorMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MSWordMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MSExcelMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    netscapeMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         jobManagementMenuItem.addActionListener(ISymAction)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       deletePersonnelMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AVCOpenStepMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       traceMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               capsMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  editMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           exitMenuItem.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                       SymAction ISymAction = new SymAction();
                                        //$$ caseslimageIcon.move(72,348);
JLabel2.setBounds(155,80,380,30);
                                                                                //$$ mainMenuBar.move(0,348);
                                                                                                                                                                                                                                                                                                                                                                               //{REGISTER_LISTENERS
                                                                                                                        //$$ JMenuBar1.move(0,348);
                                                                                                                                                                                                                                                    //{ INIT_MENUS
```

```
setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JMenuItem AVCCreationMenuItem = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JMenuItem createProjectMenuItem = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JMenuItem deleteProjectMenuItem = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JMenultem openProjectMenultem = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               com.sun.java.swing.JMenuItem exitMenuItem = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JMenuBar casesMenuBar = new
com.sun.java.swing.JMenuBar menuBar =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JSeparator JSeparator1 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JMenu projectMenu = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JLabel imageLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JMenu AVCMenu = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               com.sun.java.swing.JLabel JLabel2 = new
                                                                                                                                                                                                                                     insets.bottom + size.height + menuBarHeight);
                                                                                                                                  menuBarHeight =
                                                                                                                                                                                                                                                                                                                                                                          boolean frameSizeAdjusted = false;
                                                                 int menuBarHeight = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                           //{DECLARE_CONTROLS
                                                                                               if (menuBar != null)
                                                                                                                                                                menuBar.getPreferredSize().height;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JMenuItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JMenuItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JMenuItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JMenuItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JMenuItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JSeparator();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JMenuBar()
                              getRootPane().getJMenuBar();
                                                                                                                                                                                                                                                                                                                                         // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JMenu();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JMenu();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          // Adjust size of frame according to the insets and menu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (new CasesFrame()).setVisible(true);
                              }catch (Exception e){ System.out.println(e);}
                                                                                                                                                                                                                                                                                                                                                                                                                                             setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                     public void setVisible(boolean b)
                                                                                                                           public CasesFrame(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                super.addNotify();
imageLabel.setIcon(icon);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void addNotify()
                                                                                                                                                                                                   this(); setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bar
```

com.sun.java.swing.JMenuItem AVCOpenStepMenuItem = new com.sun.java.swing.JMenuItem();

com.sun.java.swing.JSeparator JSeparator3 = new

com.sun.java.swing.JSeparator();

com.sun.java.swing.JMenuItem AVCSplittingMenuItem = new com.sun.java.swing.JMenuItem();

com.sun.java.swing.JMenuItem AVCMergingMenuItem = new com.sun.java.swing.JMenuItem();

com.sun.java.swing.JMenu spiderMenu = new

com.sun.java.swing.JMenu();

com.sun.java.swing.JMenuItem editMenuItem = new

com.sun.java.swing.JMenuItem();

com.sun.java.swing.JMenuItem decomposeMenuItem = new com.sun.java.swing.JMenuItem();

com.sun.java.swing.JSeparator JSeparator4 = new

com.sun.java.swing.JSeparator();

com.sun.java.swing.JMenultem componentContentMenultem = new com.sun.java.swing.JMenultem();

com.sun.java.swing.JMenuItem stepContentMenuItem = new

com.sun.java.swing.JMenuItem();

com.sun.java.swing.JSeparator JSeparator2 = new com.sun.java.swing.JSeparator();

com.sun.java.swing.JMenultem traceMenultem = new

com.sun.java.swing.JMenuItem(); com.sun.java.swing.JMenu toolsMenu = new

com.sun.java.swing.JMenu toolsMenu = new com.sun.java.swing.JMenu();

com.sun.java.swing.JMenuItem(); com.sun.java.swing.JMenuItem MSWordMenuItem = new

com.sun.java.swing.JMenuItem textEditorMenuItem = new

com.sun.java.swing.JMenultem MSWordMenultem = new com.sun.java.swing.JMenultem(); com.sun.java.swing.JMenultem MSExcelMenultem = new

com.sun.java.swing.JMenuItem(); com.sun.java.swing.JSeparator JSeparator5 = new

com.sun.java.swing.Jseparator Jseparators = com.sun.java.swing.JSeparator();

com.sun.java.swing.JMenuItem netscapeMenuItem = new com.sun.java.swing.JMenuItem();

com.sun.java.swing.JMenultem capsMenultem = new com.sun.java.swing.JMenultem();

com.sun.java.swing.JSeparator JSeparator6 = new com.sun.java.swing.JSeparator();

com.sun.java.swing.JMenu personnelDataMenu = new com.sun.java.swing.JMenu();

com.sun.java.swing.JMenuItem addPersonnelMenuItem = new com.sun.java.swing.JMenuItem();

com.sun.java.swing.JMenuItem editPersonnelMenuItem = new

com.sun.java.swing.JMenultem(); com.sun.java.swing.JMenultem deletePersonnelMenultem = new

com.sun.java.swing.JMenultem();

com.sun.java.swing.JMenu jobScheduleMenu = new com.sun.java.swing.JMenu();

com.sun.java.swing.JMenuItem jobManagementMenuItem = new com.sun.java.swing.JMenuItem();

com.sun.java.swing.JMenuItem jobAssignMenuItem = new com.sun.java.swing.JMenuItem();

//{ DECLARE_MENUS

class SymAction implements java.awt.event.ActionListener

public void actionPerformed(java.awt.event.ActionEvent

event)

createProjectMenuItem_actionPerformed(event); else if (object == openProjectMenuItem)

if (object == createProjectMenuItem)

Object object = event.getSource()

openProjectMenuItem_actionPerformed(event); else if (object == deleteProjectMenuItem)

```
* If the name is not duplicate, create the new project and connect to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * @param event : action event from Create Project menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Ask a user to enter the new project name.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Do not allow a duplicate project name.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * ProjectSchemaFrame directly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   editMenuItem_actionPerformed(event);
                                                                                  exitMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if (object == componentContentMenuItem)
                                                                                                                            else if (object == AVCOpenStepMenuItem)
                                                                                                                                                                                                                                                                                                    else if (object == AVCCreationMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                      else if (object == AVCMergingMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if (object == AVCSplittingMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if (object == stepContentMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else if (object == decomposeMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if (object == textEditorMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if (object == MSWordMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            componentContentMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (object == traceMenuItem)
                                                                                                                                                                                                                    AVCOpenStepMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (object == editMenuItem)
                                         else if (object == exitMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                             AVCCreationMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVCMergingMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AVCSplittingMenuItem_actionPerformed(event);
deleteProjectMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stepContentMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               decomposeMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   textEditorMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MSWordMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          traceMenuItem_actionPerformed(event);
```

```
else if (object == jobManagementMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (object == deletePersonnelMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else if (object == editPersonnelMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                   else if (object == addPersonnelMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     else if (object == jobAssignMenuItem)
else if (object == MSExcelMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        jobManagementMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           deletePersonnelMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                   else if (object == capsMenuItem)
                                                                                                                                     if (object == netscapeMenuItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          editPersonnelMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             addPersonnelMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           jobAssignMenuItem_actionPerformed(event);
                                                                                         MSExcelMenuItem_actionPerformed(event);
                                                                                                                                                                                                                         netscapeMenuItem_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                          capsMenuItem_actionPerformed(event);
```

```
* Yes: connect to ProjectSchemaFrame to edit step.cfg, component.cfg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              openProjectMenuItem_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                 this.pathName = newFile.getAbsolutePath();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * No : go straight to main menu (Automatic Version Control, SPIDER,
                                                                                                                                                                                    (new ProjectSchemaFrame(this.projectName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param event : action event from Open Project menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.fileChooser = new JFileChooser(newFile);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.fileChooser.setDialogTitle("Open Project");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Allow a user to select a project, then he has a choice
                                                                                                         if( newFile.isDirectory() ){
                                File(CASESDIRECTORY,this.projectName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           File(CASESDIRECTORY,this.projectName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( this projectName != null ){
File newFile = new
                                                                                                                                                                                                                                                          menuSetEnabled(true);
                                                                      newFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      int returnValue=-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             File newFile = new
                                                                                                                                                                                                                    this.pathName)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     newFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * or dependency.cfg file.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tools, or Job Schedule
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        loop.cfg,
                                                                                                                                          this.projectName = JOptionPane.showInputDialog( this, "Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOptionPane.showMessageDialog(this, this.projectName+"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.pathName = newFile.getAbsolutePath();
                                   createProjectMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // Checking the duplication before create the new project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (new ProjectSchemaFrame(this.projectName,
                                                                                                                                                                                                                                                   Project", JOptionPane. INFORMATION_MESSAGE);
                                                                                                                                                                                                                                                                                                                           String[] theList = CASESDIRECTORY.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if( this.projectName.equals(theList[i]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Error Message"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     File(CASESDIRECTORY,this.projectName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for( int i=0; i<theList.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           else if( i==(theList.length-1) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.setOpenDelete( true );
                                                                                                                                                                                                                                                                                                                                                                                                  this.setOpenDelete( true );
                                                                                                                                                                                                                                                                                                                                                                                                                                     File newFile = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( newFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOptionPane.ERROR_MESSAGE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               menuSetEnabled(true);
                                                                                                                                                                                                                                                                                        if( this.projectName != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if( theList.length>0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             newFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.pathName)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                              if( the List.length == 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            i= theList.length;
                                                                                                                                                                                                                  "Create
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          has been created.",
                                                                          event)
```

this.fileChooser.setCurrentDirectory(CASESDIRECTORY);

```
void exitMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AVCOpenStepMenuItem\_actionPerformed (java.awt.event.ActionEventage) \\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AVCCreationMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (new AVCOpenStepFrame(this.projectName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (new AVCCreateStepFrame(this.pathName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @param event : action event from Create Step Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param event : action event from Open Step Version
       * @param event : action event from Exit menu item
                                                                                                                                                                                                                                                                                                                                                                                * Connect to AVCCreateStepFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Connect to AVCOpenStepFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.projectName)).setVisible(true);
                                                                                                                                                                                               System.exit(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.pathName)).setVisible(true);
                                                                                                                                                                                                                                       dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      void
                                                                                                                         event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          **/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   event)
                                                                                                                                                                                                                                                                                                                                       int i = JOptionPane.showConfirmDialog(this, "Do you want to open
this.fileChooser.setFileSelectionMode(this.fileChooser.DIRECTORIES_O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Except, the current project can not be deleted since it is occuping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Connect to DeleteDialog, where allows a user to delete a project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 deleteProjectMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (new ProjectSchemaFrame(this.projectName,
                                                                                                             returnValue = this.fileChooser.showDialog(this,"Open"); if( returnValue == fileChooser.APPROVE_OPTION ){
                                                                                                                                                                                                                                                                                                                                                                                                                 "Confirmation", JOptionPane.YES_NO_OPTION);
                                                                                                                                                                                                                              File file = fileChooser.getCurrentDirectory();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param event : action event from Delete Project menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (new DeleteDialog(this, "Delete Project")).setVisible(true);
                                                                                                                                                                                                                                                                                                     this.pathName = file.getAbsolutcPath();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * and all existing project names are in the combo box.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Exit CasesFrame without saving or any notice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.pathName)).setVisible(true)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         menuSetEnabled(true);
                                                                            repaint();
                                                                                                                                                                                                                                                                                                                                                                             Project Schema?",
                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(i==0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            event)
```

```
stepContentMenuItem_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      componentContentMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                               decomposeMenuItem_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @param event : action event from Component Content menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * @param event : action event from Step Content menu item
                                                                                                                     * @param event : action event from Decompose menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * Get the current versionControl object and will connect to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Get the current versionControl object and will connect to
* Get the current versionControl object and will connect to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.title = COMPONENT_CONTENT_TITLE;
                                                                                                                                                                                                                                                                                                                           this.title = DECOMPOSE_TITLE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getVersionControl();
                                                                                                                                                                                                                                                                                                                                                                       getVersionControl();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ComponentContentFrame
                                         EditDecomposeFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    StepContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           void editMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AVCMergingMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                          AVCSplittingMenultem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @param event : action event from Evolution History Merging
* @param event: action event from Evolution History Splitting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Get the current versionControl object and will connect to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (new AVCMergingFrame(this.pathName,
                                                                                                                                                                                                                                                  (new AVCSplittingFrame(this.pathName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param event : action event from Edit menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Connect to AVCEHMergingFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.title = EDIT_TITLE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.projectName)).setVisible(true);
                                                                                                                                                                                                                                                                                       this.projectName)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getVersionControl();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EditDecomposeFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  void
                                                                                      void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     event)
                                                                                                                                                                         event)
```

* Connect to AVCEHSplittingFrame

```
MSWordMenuItem_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MSExcelMenuItem_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 netscapeMenuItem_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * @param event: action event from MS Excel menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param event : action event from Netscape menu item
                                                                                                                                                                                                                                                                                                                                  throw new RuntimeException(e.toString());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       throw new RuntimeException(e.toString());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Runtime runtime = Runtime.getRuntime();
                                                                                                                                                                                Runtime runtime = Runtime.getRuntime();

    Connect to Microsoft Excel editor

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Connect to Netscape environment
                                                                                                                                                                                                                        runtime.exec(WINWORD);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           runtime.exec(EXCEL);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 catch( Exception e ) {
                                                                                                                                                                                                                                                                                            catch( Exception e)
                                                                                                                                                      try {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         try (
                                                                                                                                                                                                                                                                                                                                      void traceMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                  * Get the current versionControl object and will connect to TraceFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        lextEditorMenuItem_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * @param event; action event from MS Word menu item
                                                                                                                                                                                                                                                           * @param event : action event from Trace menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * @param event : action event from Text menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   throw new RuntimeException(e.toString());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Runtime runtime = Runtime.getRuntime();
this.title = STEP_CONTENT_TITLE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * Connect to Microsoft Word editor
                                                                                                                                                                                                                                                                                                                                                                                                                                                this.title = TRACE_TITLE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     runtime.exec(NOTEPAD);
                                   getVersionControl();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   getVersionControl();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Connect to notepad editor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                catch( Exception e ) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     try {
                                                                                                                                                                                                                                                                                                                                                                          event)
```

```
* Go to JFileChooser to choose a file before connect to PersonnelFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String filePath = STAKEHOLDER.getAbsolutePath()+fileName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   deletePersonnelMenuİtem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Connect to DeleteDialog and it has a Browse button to select a file
                                                                                                                                                                                                                                                                                                                                                                       FileDialog fd = new FileDialog(this, "Open", FileDialog.LOAD);
                                                                                                                                                                                                                                              editPersonnelMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param event : action event from Personnel - Delete menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (new PersonnelFrame(filePath, "Edit")).setVisible(true);
                                                                                                                           * @param event : action event from Personnel - Edit menu item
                                                                                                                                                                                                                                                                                                                                                                                                                fd.setDirectory(STAKEHOLDER.getAbsolutePath());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (new DeleteDialog(this, "Delete Personnel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           String fileName = fd.getFile();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Short cut to print the output
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * under stakeholder directory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( fileName != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Data")).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                       fd.show();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      void capsMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      addPersonnelMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * @param event : action event from Personnel - Add menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                         * @param event : action event from Caps menu item
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (new PersonnelFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               throw new RuntimeException(e.toString());
                                                                                                                                                               throw new RuntimeException(e.toString());
Runtime runtime = Runtime.getRuntime();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Runtime runtime = Runtime.getRuntime();
                                                                                                                                                                                                                                                                                                                                                                    * Connect to Caps environment
                                           runtime.exec(NETSCAPE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Connect to PersonnelFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         runtime.exec(CAPS);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      catch( Exception e ) {
                                                                                                                      catch( Exception e)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 try
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    event)
```

```
this.fileChooser.setFileSelectionMode(this.fileChooser.DIRECTORIES_O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             String currentVersion = (String)this.vc.getCurrentVersion();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * If the selected step is not a current step, Error Message shows up
                                                                                                                                                                                                                                                                                                                                 JOptionPane.showMessageDialog(this, "Can not open the
     this.vc = (VersionControl) current.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    String currentStep = (String)this.vc.getCurrentStep();
                                                                                                                                                                                                                                                                                                                                                                           application \nsince current.vsn does not exist in this project.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.fileChooser.setDialogTitle("Directory Tree");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Check and locate the current step in fileChooser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String wholePath = this.pathName +
                                                                                                                                                                                                       catch( ClassNotFoundException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.fileChooser.setCurrentDirectory(file);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.fileChooser = new JFileChooser(file);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  File file = new File(wholePath);
                                                                                                                                                                                                                                                 debug("ClassNotFoundException: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                  "Error Message",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "\\"+currentStep+"\\"+currentVersion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           int returnValue=-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void directoryTree(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                        catch(IOException i){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( this.vc != null ){
                                                                                                                               fileInput.close();
                                                                                   current.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   directoryTree();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            return;
                                                                                                                                                                                                                                                                                                                                                                        * Or not gray out if CASESDIRECTORY exists at least one project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ObjectInputStream current = new ObjectInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.deleteProjectMenuItem.setEnabled(enabled);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.openProjectMenuItem.setEnabled( enabled );
                                                                                                                                                                                                                                                                                        * Gray out Open Project and Delete Project menu items

    if there is no project under CASESDIRECTORY

                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void setOpenDelete( boolean enabled ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Get VersionControl object from current.vsn file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.jobScheduleMenu.setEnabled(flag);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FileInputStream(this.pathName+"\\current.vsn");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.spiderMenu.setEnabled( flag );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         void menuSetEnabled(boolean flag){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.toolsMenu.setEnabled(flag)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * If this.projectName is null, flag = false
                                                                                public void debug( String string ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void getVersionControl(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FileInputStream fileInput = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.AVCMenu.setEnabled( flag );
* @param string: the output string
                                                                                                                            System.out.println(string)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( current != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Else flag = true
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fileInput );
```

```
String currentVersion = (String)this.vc.getCurrentVersion();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     else if( this.title.equals(STEP_CONTENT_TITLE) ){
                                                                                                                                                                                                                                                                                                   String decomposeOutput = stepName.substring(2);
                                                                                                                                                                                                                                                                                                                                               (new EditDecomposeFrame(this.title,stepName,
                                             (new EditDecomposeFrame(this.title,stepName,
                                                                                                                                                                       else if( this.title.equals(DECOMPOSE_TITLE) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String currentStep = (String)this.vc.getCurrentStep();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       setComponentContent( stepName, absPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String newSubString = absPath.substring(0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if( this.title.equals(TRACE_TITLE) ){
                                                                                                                                                                                                                  int theMax = (int)findMax(absPath) +1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Locate the selected step and it is a decompose step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.title.equals(COMPONENT_CONTENT_TITLE)){
  if( this.title.equals(EDIT_TITLE) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                decomposeOutput, absPath, theMax)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @param absPath : a string of the whole path
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 setStepContent(null, stepName, absPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String wholePath = this.pathName +
                                                                                                                                                                                                                                                        stepName = stepName + "-" + theMax;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          setTraceFrame(stepName, absPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void subDir(String absPath ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "\\"+currentStep+"\\"+currentVersion;
                                                                                         output,absPath)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else if(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          wholePath.length());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOptionPane.showMessageDialog(this, "The selected directory is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String currentVersion = (String)this.vc.getCurrentVersion();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        currentStep.substring((int)currentStep.indexOf("-")+1)+currentVersion;
                                                                                                                                                                       File aFile = this.fileChooser.getCurrentDirectory();
                                                                                                                                                                                                                                                                                                                                                                                       currentStep.substring((int)currentStep.indexOf("-")+1)+currentVersion;
                                                                                   if( returnValue == this.fileChooser.APPROVE_OPTION ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if( absPath.length() > wholePath.length() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         String stepName = currentStep + currentVersion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String currentStep = (String)this.vc.getCurrentStep();
return Value = this.fileChooser.showDialog(this,"Open");
                                                                                                                                                                                                                                                                                                      String absPath = aFile.getAbsolutePath():
                                                                                                                                                                                                                                                                                                                                                                                                                                f( absPath.equals( wholePath ) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Locate the selected step and it is an original step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param absPath: a string of the whole path
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        currentDir(absPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void currentDir(String absPath ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Error Message",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    subDir(absPath);
                                                                                                                                                                                                                                                                                                                                            String output =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOptionPane.ERROR_MESSAGE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String output =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         not the current step.",
```

```
else if( this.title.equals(STEP_CONTENT_TITLE) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                 JOptionPane.showMessageDialog(this, "The selected directory is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @return componentVector: a vector of strings holds component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public Vector getComponents(String stepName, String absPath){
  setComponentContent( stepName, absPath);
                                                                                                                                                           setStepContent(null, stepName, absPath);
                                                                                                                                                                                                                                 else if( this.title.equals(TRACE_TITLE) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param absPath: the complete path of this stepName
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vector componentVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Return a vector of all components of the current step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FileInputStream fileInput = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 componentVector.addElement(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DataInputStream inputP = new
                                                                                                                                                                                                                                                                           setTraceFrame(stepName, absPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param stepName : the selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( inputP != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Error Message"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FileInputStream(absPath+"\\input.p");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         String s = \text{stepName.substring}(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DataInputStream(fileInput);
                                                                                                                                                                                                                                                                                                                                                                                                   else(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            not the current step.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     names
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String decomposeOutput = stepName.substring(2);
                                currentStep.substring((int)currentStep.indexOf("-")+1)+currentVersion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String stepName = currentStep+currentVersion+"-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else if( this.title.equals(DECOMPOSE_TITLE) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (new EditDecomposeFrame(this.title, stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (new EditDecomposeFrame(this.title, stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String stResult = (String)stVector.elementAt(0);
                                                                                                                int result = wholePath.compareTo(newSubString)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stepName = stepName + "." +theMax;
                                                                                                                                                                                                                                                                                                                                                                                                                                 stVector.addElement(st.nextToken());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(this.title.equals(EDIT_TITLE)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for( int i=1; i<stVector.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.title.equals(COMPONENT_CONTENT_TITLE)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 decomposeOutput, absPath, theMax)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          output = output + "-" + stResult;
                                                                                                                                                                                                                                                                                                                                                    Vector stVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      int the Max = (int)find Max(absPath) + 1;
                                                                                                                                                                                                                                                                                                                                                                                         while(st.hasMoreTokens()){
                                                                                                                                                                                                                                                                      StringTokenizer st = new StringTokenizer(subName, "\\");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             stResult+"."+(String)stVector.elementAt(i);
                                                                                                                                                                                                                                   absPath.substring(wholePath.length()+1);
                                                                                                                                                                                              String subName =
                                                                                                                                                      if (\text{result} == 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                output,absPath)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else if(
String output =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "+stResult;
```

```
JOptionPane.showMessageDialog(this, absPath+" is not a step.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void setStepContent(TraceFrame traceFrame, String stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( !(file.getName()).equals(COMPONENT_CONTENT_DIR) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       File temp = new File(this.pathName, this.vc.getCurrentStep());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        atomicsVector )).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                     * @param absPath: the absolute path of stepName, e.g.,F:\Cases\s-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (new StepContentFrame(traceFrame, stepName, absPath,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              getAtomics(new File(temp, theFiles[i]), atomicsVector);
                                                                                                                                                                                                                                                                                                                         * @param stepName: selected step name, e.g., s-I, 1.1, 1, ...
                                                                                                                                                                                                                                                                                    * @param traceFrame: instantiation of TraceFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vector atomicsVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for( int i=0; i<theFiles.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Message", JOptionPane. ERROR_MESSAGE);
                                         (Vector)fileNameList())).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String[] theFiles = temp.list();
     getComponents(stepName, absPath),
                                                                                                                                                                                                    * Connect to StepContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         File file = new File(absPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Warning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( file.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Please reselect it!",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String absPath ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else{
                                                                                                                                                                                                                                                                                                                                                               fileInput = new FileInputStream(absPath+"\\input.s");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param absPath: the absolute path of stepName, e.g., F:\Cases\s-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     debug("IOException at ComponentContent: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void setComponentContent( String stepName, String
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ComponentContentFrame(this.pathName,stepName.substring(2),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param stepName: selected step name, e.g., s-I, 1.1, 1, ...
                                    if((sP!= null) && (!sP.equals("")) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( (sS!= null) && (!sS.equals("")) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tokenizer(componentVector, sS);
                                                                           tokenizer(componentVector, sP);
String sP = inputP.readLine();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String sS = inputS.readLine();
                                                                                                                                                                                                                                                                                                                                                                                                      DataInputStream inputS = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Connect to ComponentContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( inputS != null ){
                                                                                                                                                                                                                                        fileInput.close();
                                                                                                                                                                                                  inputP.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     return component Vector;
                                                                                                                                                                                                                                                                                                                                                                                                                                             DataInputStream(fileInput);
```

```
* @param thePath: the path of selected step, e.g., F:\Cases\s-I\1.1\1\2\1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @return theMax: an integer, the maximum number of the selected
                                                                                                                      getAtomics(new File(aFile, theFiles[i]), storedVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Find a maximum number of the selected step version number
                                      !((fl.getName()).equals(COMPONENT_CONTENT_DIR))){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          catch(NumberFormatException n){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          File f2 = new File(thePath, list[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            String[] list = (String[]) f1.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for(int i=0; iiii++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           File f1 = new File (the Path);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for(int i=0; i<v.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public int findMax( String thePath ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Integer il = new Integer(list[i]);
                                                                                                                                                                                                                                                                                                                             storedVector.addElement(aFile);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(f2.isDirectory()){
if( (fl.isDirectory()) &&
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     int the Max = 0;
                                                                                  isAtomic = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            v.addElement(i1);
                                                                                                                                                                                                                                                                                      if( isAtomic ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param absPath: the absolute path of stepName, e.g.,F:\Cases\s-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (new TraceFrame(this, this.pathName, getComponents(stepName,
JOptionPane.showMessageDialog(this, absPath+" is not a step.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       !((aFile.getName()).equals(COMPONENT_CONTENT_DIR)) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * @param aFile: since a file is a step, aFile is a selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void setTraceFrame(String stepName, String absPath){
                                                                                                                                                                                                                                                                                                                                                                                                                                                    * @param stepName: selected step name, e.g., s-I, 1.1, 1, ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void getAtomics(File aFile, Vector storedVector){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 char c = (char)((String)theFiles[i]).charAt(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    absPath), (Vector)fileNameList())).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       File f1 = new File( aFile, theFiles[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @param storedVector : a vector of atomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Character the Char = new Character(c);
                                                                        "Warning Message", JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for( int i=0; i<theFiles.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Get all atomics of the selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String[] theFiles = aFile.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( (aFile.isDirectory()) &&
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if(theChar.isDigit(c)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               boolean isAtomic = true;
                                                                                                                                                                                                                                                                                                                                                                 * Connect to TraceFrame
                                      Please reselect it!",
                                                                                                                                                                       return;
```

```
if( (new File(this.pathName+"\\"+theList[i])).isDirectory()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             String[] theList = (String[])(new File(this.pathName)).list();
                                   Math.max(theMax,(int)((Integer)v.elementAt(i)).intValue());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    StringTokenizer st = new StringTokenizer(s,",");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String the String = (st.nextToken()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                public void tokenizer( Vector v, String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Save all personnel object after updating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @return a vector of string with all steps
                                                                                                                                                                                                                                                                                                                                   * @param v : a vector of tokenizer string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          while(st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for( int i=0; i<theList.length;i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               v.addElement(theString);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public Vector fileNameList(){
                                                                                                                                                                                                                                                            * Token a string with delimit is ","
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vector v = new Vector()
                                                                                                                                                                                                                                                                                                                                                                         * @param s: a tokenized string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           v.addElement(theList[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * List all steps of a project.
                                                                                                             return thcMax;
theMax =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               return v;
```

```
Personnel personnel = (Personnel)personnelVector.elementAt(i); if( personnel != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOptionPane.showMessageDialog(this, "Sorry, saving is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Return a vector of personnel objects under stakeholder directory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    unsuccessful", "Error Message", JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                          FilcOutputStream(STAKEHOLDER+"\\"+personncl.getID());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String[] list = (String[])STAKEHOLDER.list();
public void savePersonnelVector(Vector v){
                                                                                                            for( int i=0; i<personnelVector.size(); i++ ){
                                                                                                                                                                                                                                                         FileOutputStream fileOutput = new
                                                                                                                                                                                                                                                                                                                                 ObjectOutputStream oo = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public Vector getPersonnelVector(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for( int i=0; iiii++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             personnelVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                            oo.writeObject(personnel);
                                                                          if( personnelVector != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          catch(IOException io){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                    ObjectOutputStream(fileOutput);
                                         personnel Vector = v;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( list.length > 0){
                                                                                                                                                                                                                                                                                                                                                                                                       if( oo != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oo.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oo.close();
```

```
String[] stepList = aProject.list(); //List all the steps of the current
                                                                                                     File aFile = new File(aProject,stepList[i]); //searching for steps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FileOutputStream fileOutput = new FileOutputStream(path);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  oo.writeObject((StepContent)projectStepContentVector.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String path = (String)stepContentPathVector.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for( int i=0; i<projectStepContentVector.size(); i++ ){</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void saveStepContentVector(Vector v){
                                                                                                                                                                                                                File temp = new File(aProject, stepList[i]);
                                                                                                                                                                                                                                                                                                                        getAtomics(new File(temp, theFiles[j]),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( projectStepContentVector != null ){
                                                                                                                                                                                                                                                                                 for( int j=0; j<theFiles.length; j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Save all stepContent objects after updating
                                                                   for( int i=0; i<stepList.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ObjectOutputStream oo = new
                                                                                                                                                                                                                                               String[] theFiles = temp.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        projectStepContentVector = v;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return projectAtomicVector;
                                                                                                                                                                         if( aFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ObjectOutputStream(fileOutput);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( 00 != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oo.flush();
                                                                                                                                                                                                                                                                                                                                                            projectAtomicVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oo.close();
                                      project
                                                                                                                                              only
String filePath = STAKEHOLDER.getAbsolutePath()+list[i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   debug("ClassNotFoundException: "+c);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      File aProject = new File(this.pathName); //current project
                                                                                                                                                                                                                                                                                                                                                                                       personnelVector.addElement(personnel);
                                                                                                     FileInputStream fileInput = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      catch( ClassNotFoundException c){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Return a vector of all atomics in the selected project
                                                                                                                                                                            ObjectInputStream oi = new
                                    File aFile = new File(filePath);
                                                                                                                                                                                                                                                                                    Personnel personnel =
                                                                                                                                                                                                                                                                                                                                                          if( personnel != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  System.out.println(io);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catch( IOException io ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fileInput.close();
                                                                      if( aFile.exists() ){
                                                                                                                                                                                                                                             if( oi != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           projectAtomicVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public Vector getAllAtomics(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oi.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return personnelVector;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( aProject.isDirectory() ){
                                                                                                                                                                                                                  ObjectInputStream(fileInput);
                                                                                                                                                                                                                                                                                                                        (Personnel)oi.readObject();
                                                                                                                                            FileInputStream(aFile);
```

```
* Return a vector of atomics with the status is "Scheduled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for( int i=0; iijectStepContentVector.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String status = ((String)st.getStatus()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            scheduledAtomicVector.addElement(st);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            scheduledAtomicVector.addElement(st);
                                                                                                                                                                                                                                                                               debug("ClassNotFoundException: "+c);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (StepContent)projectStepContentVector.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public Vector getScheduledAtomicVector(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           scheduledAtomicVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 else if( status.equals("Scheduled") ){
                                                                                                                                                                                                                                    catch( ClassNotFoundException c){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return projectStepContentVector;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( status.equals("Approved") ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( projectStepContentVector != null ){
                                                                                                                                                   debug("IOException: "+io);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 st.setStatus("Scheduled");
                                                                                                             catch(IOException io){
                                        fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   StepContent st =
oo.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if( st != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            File((File)projectAtomicVector.elementAt(j), "step.cnt"); //Example to get
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ObjectInputStream oo = new ObjectInputStream(fileInput);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FileInputStream fileInput = new FileInputStream(theFile);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   stepContentIndex); //Step content vector of all atomics in the project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                stepContentPathVector.insertElementAt(theFile.getAbsolutePath(),
                                                                                                                                                                                                                                                                                                                                                         * Return a vector of stepContent objects in the selected project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             projectStepContentVector.insertElementAt(st,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 StepContent st = (StepContent)oo.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   projectAtomicVector = (Vector)getAllAtomics();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for( int j=0; jjjectAtomicVector.size(); j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           projectStepContentVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the atomic at element 4 of projectAtomicVector
                                                                                                                                                                                                                                                                                                                                                                                                                                     public Vector getStepContentVector(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( projectAtomicVector != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             stepContentPathVector = new Vector();
                                                                            debug("IOException: "+io);
                                 catch(IOException io){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( st!= null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   int stepContentIndex = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if( theFile.exists() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           )( | llnu =; 00 )ji
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           File the File = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stepContentIndex++);
```

```
StepContent step=(StepContent) job_queue1.elementAt(i);
      (new JFrame_assignjob(this, person_queue, job_queue,
                                                                                                                                                                                                                                                                                                                                                                                                                               StepContent step=(StepContent)job_pool.elementAt(i);
                                                                                                                                  (new JDialog_message1()).setVisiblc(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vector v=(Vector) step.getPredecessors();
                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(step.getStatus().equals("Approved")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for(int i=0; i<job_queue1.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          setstep(step.getStepName(), step);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.job_queue2.addElement(step);
                                                                                                                                                                                                                                                                                                                                                                                              for(int i=0; i<job_pool.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               job_queue1.addElement(step);
                                                                                                                                                                                                                                                                                                                                                               job_queue2.removeAllElements();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.job_queue.addElement(step);
                                                                                                                                                                                                                                                                                                                                  job_queue1.removeAllElements();
                                                                                                                                                                                                                                                                                            job_queue.removeAllElements();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               step.setStatus("Scheduled");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                llstep.getStatus().equals("Scheduled")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               n=checkpredecesor(step);
                                                                                                                                                                                                                                                             void Predecessor() {
                                 job_pool)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             f(v!=null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(n>0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                int n=0;
                                                                                                     else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         jobAssignMenuItem_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                jobManagementMenuItem_actionPerformed(java.awt.event.ActionEvent
                                                            StepContent step=(StepContent)job_pool.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //cleanperson_job();//each time will kill all of person's job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(person_queue.size()>0 && job_queue.size()>0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (new JFrame_manage(job_queue)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                person_queue = (Vector)getPersonnelVector();
                                                                                                                                                                                                                                                                                                                                                               job_pool = (Vector)getStepContentVector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (new JDjialog_message()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                              for(int i=0; i<job_pool.size(); i++)(
return scheduledAtomicVector;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(job_queue.size()>0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 checking_person();
                                                                                                                              * Job Management
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Job Assignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Predecessor();
                                                                                                                                                                                                   void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else{
                                                                                                                                                                                                                                                                   event)
```

```
//end for_loop(j)
                                                                                                                                                                                                                                                                                 if(step!=null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ){(llnu=;lood_doi);ji
                                                                                                                                                                                                  if(minor!=null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(step!=null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //end check_person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   }// end for_loop(i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //end for_loop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     return 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 StepContent step=(StepContent) major.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Personnel person=(Personnel)person_queue.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( check_status(step.getStepName())==1){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vector major=(Vector) person.getMajorJobs();
                                                                                                                                                                                                                                                                                                                                                                   if(predecesor.equals(step2.getStepName())){
                                                                                                                                                                                                                                                   String predecesor=(String) v.elementAt(i); for(int j=0; j<this.job_queue1.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  major.removeElement(step);
                                                                                                                                                                  Vector v=(Vector) step.getPredecessors();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for(int i=0; i<person_queue.size(); i++){
                                                                                                                                                                                                                                                                                                          StepContent step2=(StepContent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for(int j=0; j<major.size(); j++){
                                                                                                                                           int checkpredecesor(StepContent step){
this.job_queue.addElement(step);
                                                                                                                                                                                                                         for(int i=0; i<v.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(major!=null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(step!=null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               void checking_person(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(major!=null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(person!=null){
                                                                                                                                                                                                                                                                                                                                     this.job_queue1.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     }//end for_loop
                                                                                                                                                                                                                                                                                                                                                                                             return 0;
                                                                                                                                                                                                if(v.size()>0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  }//end if
                                                      //end for_loop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return 1;
```

```
| //end if(major!=null)
| //end for_loop(j)
| //end for_loop(j)
| //eneck minor=vector) person getMinorJobs();
| if(minor!=null) {
| for(int k=0; k<minor.size(); k++) {
| StepContent step=(StepContent) minor.elementAt(k);
| if(step!=null) {
| if(step!=null) {
| if(step!=null) {
| if(step.getStatus(step.getStepName())=1) {
| if(step.getStatus(stepname) {
| if(step.getStatus(); i++) {
| if(step.getStatus().equals("Completed")) {
| if(step.getStatus().equals("Completed")) {
| if(step.getStatus().equals("Completed") {
| if(step.getStatus().equals("
```

```
static final File CASESDIRECTORY = new File("F:\\nps\\Thesis\\CasesJobSchedule_10_30_99\\cases_le11\\data\\cases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        File("F:\\nps\\Thesis\\CasesJobSchedule_10_30_99\\cases_le11\\data\\stake
                                * All the titles, directories, or the other names are located in this class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * CasesTitle: contains all global variables in Cases package.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       //Locations of netscape, notepad, winword, excel, and caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Files\\Netscape\\Communicator\\Program\\netscape.exe";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //Locations of Cases and stakeholder directory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   static final File STAKEHOLDER = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   static final String NOTEPAD = "notepad.exe";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     static final String NETSCAPE = "C:\\Program
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public interface CasesTitle{
                                                                                                                                                                                                                                                                                                                                                                                                                                           import java.awt.event.*;
                                                                                                                                                                                                                                                                                                                                                                                                        import java.awt. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 import java.util. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            import java.io.*;
                                                                                                                                                                                                                                                                                                                                 package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    StepContent step=(StepContent) job_pool.elementAt(i);
                                                                                                       Personnel p=(Personnel) person_queue.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Personnel p=(Personnel) person_queue.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void setperson_queue(int personid, Personnel p1){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void setstep(String stepname, StepContent step1){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(personid==Integer.parseInt(p.getID())){
                                                                                                                                                                                                                                                                                                                                                                                                     int personid=Integer.parseInt(p.getID());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(step.getStepName().equals(stepname)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for(int i=0; i<person_queue.size(); i++){
                                                                 for(int i=0; iicperson_queue.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                person_queue.setElementAt(p1, i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 savePersonnelVector(person_queue);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             job_pool.setElementAt(step1, i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for(int i=0; i<job_pool.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                        setperson_queue(personid, p);
                                                                                                                                               Vector v1=p.getMajorJobs();
                                                                                                                                                                                  Vector v2=p.getMinorJobs();
                                                                                                                                                                                                                                                                                                                            v2.removeAllElements();
                                                                                                                                                                                                                                                        v1.removeAllElements();
                                                                                                                                                                                                                                                                                            p.setMajorJobs(v1);
                                                                                                                                                                                                                                                                                                                                                                    p.setMinorJobs(v2);
void cleanperson_job(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         //end for_loop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          catch(Exception e){}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    catch(Exception e){}
```

```
static final String EDTT_TTTLE = "SPIDER-Edit";
static final String DECOMPOSE_TTTLE = "SPIDER-
Decompose";
static final String COMPONENT_CONTENT_TTTLE =
"SPIDER-Component Content";
static final String STEP_CONTENT_TTTLE = "SPIDER-Step
Content";
static final String TRACE_TTTLE = "SPIDER-Trace";
//title of combo boxes
static final String PROCESS_TTTLE = "Select a Process";
static final String STEP_TYPE_TTTLE = "Select a Step Type";
static final String COMPONENT_TYPE_TTTLE = "Select a Component
Type";
static final String LINKS_TTTLE = "Select a Link Type";
static final String SKILL_TTTLE = "ID : Name : Level";
static final String SKILL_TTTLE = "ID : Name : Level";
static final String SKILL_TTTLE = "Belia : "Delete"};
```

//Links file name inside Component Content directory

(COMPONENT_CONTENT_DIR)

```
"UML", "System Analysis", "System Design"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Maintenance", "Organization", "Evaluation",
                                                                          static final String[] LINK_FILE_NAMES = { "txt.link", "word.link",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         static final int PRIORITY_LEVEL = 6; //from 0 to 5 static final String[] SKILL_LIST = {"Unix System", "CAPS", "TAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Ada", "Notepad", "MS Word", "MS Excel",
static final String COMPONENT_CONTENT_DIR = "Component
                                                                                                                                                                                                 //two types of variant in EHL merging frame static final String[] VARIANT_TYPES = {"Old", "New"};
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   static final int SECURITY_LEVEL = 6; //from 0 to 5
                                                                                                                                                                                                                                                                                                                                                                                                      //from 0 to 3
                                                                                                                                                                                                                                                                                                                                                                                                                                               //from 1 to 20
                                                                                                                  "excel.link", "data.link", "url.link", "caps.link"};
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Management", "Negotiation" \}; // 20 skills name
                                                                                                                                                                                                                                                                                                                                                                                                   static final int SKILL_LEVEL = 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                          static final int SKILL_ID = 21;
                                                                                                                                                                                                                                                                                                                                                             //data is using for SkillTable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Coding", "Testing",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Plus", "C", "C++",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Rational Rose",
                                             Content"
```

```
JLabel4.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                           JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JLabel3.setHorizontalAlignment(com.sun.java.swing.SwingConsta
// what Visual Cafe can generate, or Visual Cafe may be
                                                                          // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Label3.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JLabel4.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JLabel1.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JLabel2.setForeground(java.awt.Color.black);
                                                                                                                                                  setTitle("SPIDER-Component Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getContentPane().add(textComboBox);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JLabel3.setBounds(30,330,90,20);
                                                                                                                                                                                        getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JLabel1.setBounds(30,370,90,20)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JLabel2.setBounds(30,290,90,20)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JLabel4.setBounds(30,170,90,20)
                                                                                                                                                                                                                                                                                                                                                                                                                  JLabell.setText("CAPS Files:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             getContentPane().add(JLabel3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             getContentPane().add(JLabel4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getContentPane().add(JLabel2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                      getContentPane().add(JLabel1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JLabel2.setText("Data Files:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ILabel4.setText("Text Files:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JLabel3.setText("URLs");
                                                                                                           //{ INIT_CONTROLS
                                                                                                                                                                                                                            setSize(650,520);
                                                                                                                                                                                                                                                                   setVisible(false);
                                           unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nts.RIGHT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public class ComponentContentFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                 * ComponentContentFrame: create/edit/delete Component Content
                                                                                                                                                                                                                          import com.symantec.itools.swing.borders.LineBorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Implements interface I_ComponentContent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          implements CasesTitle, I_ComponentContent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public ComponentContentFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public String currentComponent = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public Vector fnList = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Create ComponentContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public String pathName = null;
                                                                                                                                                                                             import com.sun.java.swing. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           * files for a selected step.
                                                                                                                                                                                                                                                                                                                                                                                                                     directory with all link
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            syntax that matches
                                                                               import java.awt.*;
                                                                                                                import java.util.*;
                                                                                                                                                         import java.io. *;
    package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and initializes
```

CAPSComboBox.setBounds(120,370,500,20) cancelButton.setActionCommand("Cancel"); JRLComboBox.setBounds(120,330,500,20); extComboBox.setBounds(120,170,500,20); getContentPane().add(CAPSComboBox). cancelButton.setBounds(564,450,73,24); getContentPane().add(URLComboBox) getContentPane().add(deleteButton); getContentPane().add(cancelButton) getContentPane().add(saveButton); getContentPane().add(editButton); getContentPane().add(addButton); cancelButton.setText("Cancel"); deleteButton.setBounds(0,0,0,0); saveButton.setBounds(0,0,0,0); editButton.setBounds(0,0,0,0); addButton.setBounds(0,0,0,0);

JLabel5.setHorizontalAlignment(com.sun.java.swing.SwingConsta

JLabel5.setText("Component Content:");
getContentPane().add(JLabel5);
JLabel5.setForeground(java.awt.Color.black);
JLabel5.setFont(new Font("Dialog", Font.BOLD, 16));
JLabel5.setBounds(0,7,170,30);
componentLabel.setText("Component Content:");
getContentPane().add(componentLabel);
componentLabel.setForeground(java.awt.Color.black);
componentLabel.setFont(new Font("Dialog",

Font.BOLD, 15));

componentLabel.setBounds(175,7,500,30);

ILabel6.setForeground(java.awt.Color.black)

getContentPane().add(JLabel6)

ILabel6.setBounds(10,60,130,20);
getContentPane().add(componentsComboBox);
componentsComboBox.setBounds(140,60,500,20);
getContentPane().add(connectButton);
connectButton.setBounds(0,0,0);
getContentPane().add(MSWordComboBox);
MSWordComboBox.setBounds(120,210,500,20);
getContentPane().add(MSExcelComboBox);
MSExcelComboBox.setBounds(120,250,500,20);

 $\label{lem:com:sun:java.swing.SwingConstants.RIGHT)} ILabel 7.set Horizontal Alignment (com.sun.java.swing.SwingConstants.RIGHT);$

JLabel7.setText("MS Word Files:");
getContentPane().add(JLabel7);
JLabel7.setForeground(java.awt.Color.black);
JLabel7.setBounds(30,210,90,20);

JLabel8.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

ILabel8.setText("MS Excel Files:");
getContentPane().add(JLabel8);
JLabel8.setForeground(java.awt.Color.black);
JLabel8.setBounds(30,250,90,20);
JPanel1.setBorder(lineBorder1);
JPanel1.setLayout(null);
getContentPane().add(JPanel1);
JPanel1.setBounds(10,120,630,300);
JPanel1.add(dataComboBox);
dataComboBox.setBounds(110,168,500,20);

JLabel9.setVerticalAlignment(com.sun.java.swing.SwingConstant s.BOTTOM);

JLabel9.setText("Component Content Links");

JLabel9.setBorder(lineBorder1);

JPanel1.add(JLabel9);

JLabel9.setForeground(java.awt.Color.black);

JLabel9.setFore(new Font("Dialog", Font.BOLD, 15));

```
this.componentsComboBox.addItem(COMPONENT_TYPE_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.componentsComboBox.addItem( itemVector.elementAt(i) );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public ComponentContentFrame( String pathName, String stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Constructor for TraceFrame to launch ComponentContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.componentsComboBox.setSelectedItem(currentItem);
                                                                                                                                                         deleteButton.setActionCommand("Delete");
                                                                                                                                                                                                                                        deleteButton.setBounds(152,450,70,24);
                                                                                                                                                                                                                                                                                                                                                                                              addButton.setActionCommand("Add");
    editButton.setBounds(81,450,70,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.componentsComboBox.addItem(currentItem)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        addButton.setBounds(10,450,70,24);
                                                                                                                                                                                                  getContentPane().add(deleteButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                   getContentPane().add(addButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     his.componentsComboBox.setEnabled(false);
                                                                                                                    deleteButton.setText("Delete");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.componentLabel.setText(stepName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.componentLabel.setText(stepName);
                                                                                                                                                                                                                                                                                                                                                    addButton.setText("Add");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for( int i=0; i<itemVector.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  //Connect button is used in trace panel
                                                                            //Add Delete button
                                                                                                                                                                                                                                                                                                             //Add Add button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String currentItem, Vector fnList ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.pathName = pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.pathName = pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.fnList = fnList;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.fnList = fnList;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this();
                                                                            JPanel1.setFont(new Font("Dialog", Font.BOLD, 12));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public ComponentContentFrame( String pathName, String stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    componentsComboBox.addItemListener(iSymItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Constructor for CasesFrame to launch ComponentContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cancelButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        deleteButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                            SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  saveButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   editButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                 addButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       saveButton.setActionCommand("Save");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          editButton.setActionCommand("Edit");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      saveButton.setBounds(492,450,70,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SymItem iSymItem = new SymItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().add(saveButton);
JLabel9.setBounds(236,0,190,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               getContentPane().add(editButton);
                                       getContentPane().add(JPanel1);
                                                                                                                    //$$ lineBorder1.move(0,521);
                                                                                                                                                                                                                                                                                                                                                  // REGISTER LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     saveButton.setText("Save");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   editButton.setText("Edit");
                                                                                                                                                                                                                                   //{{INIT_MENUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //Add Edit button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vector itemVector, Vector fnList){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             //Add Save button
```

	connectButton.setText("Connect"); getContentPane().add(connectButton);	Insets insets = getInsets(); com.sun.iava.swing.JMenuBar menuBar =
~	connectButton.setBounds(517,380,81,24);	getRootPane().getJMenuBar(); int menuBarHeight = 0;
public (public ComponentContentFrame(String sTitle)	if (menuBar' != null) menuBarHeight =
. —		menuBar.getPreferredSize().height;
	this(); setTitle(sTitle):	setSize(insets.left + insets.right + size.width, insets.top + insets bottom + size height + menuRarHeight).
~		(/1977)
public '	public void setVisible(boolean b)	// Used by addNotify
~		boolean frameSizeAdjusted = false;
	11 (0)	
	setLocation(50, 50);	//{DECLARE_CONTROLS
. ,	super.setVisible(b);	com.sun.java.swing.JLabel JLabel1 = new
~		com.sun.java.swing.JLabel();
		com.sun.java.swing.JLabel JLabel2 = new
static p	static public void main(String args[])	com.sun.java.swing.JLabel();
_		com.sun.java.swing.JLabel JLabel3 = new
	(new ComponentContentFrame()).setVisible(true);	com.sun.java.swing.JLabel();
		com.sun.java.swing.JLabel JLabel4 = new
;		com.sun.java.swing.JLabel();
public	public void addNotify()	com.sun.java.swing.JComboBox textComboBox = new
		com.sun.java.swing.JComboBox();
	// Record the size of the window prior to calling parents	com.sun.java.swing.JComboBox CAPSComboBox = new
addNotify.		com.sun.java.swing.JComboBox();
	Dimension size = getSize();	com.sun.java.swing.JComboBox URLComboBox = new
		com.sun.java.swing.JComboBox();
	super.addNotify();	com.sun.java.swing.JButton saveButton = new
		com.sun.java.swing.JButton();
	if (frameSizeAdjusted)	com.sun.java.swing.JButton editButton = new
	refurn;	com.sun.java.swing.JButton();
	frameSizeAdjusted = true;	com.sun.java.swing.JButton deleteButton = new
		com.sun.java.swing.JButton();
,	// Adjust size of frame according to the insets and menu	com.sun.java.swing.JButton addButton = new
bar		com.sun.java.swing.JButton();

```
(new ConnectionLinksFrame(this, s, BUTTONS[0])).setVisible(true);
public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cancelButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                     deleteButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                               saveButton_actionPerformed(event);
                                                                                                                                                                                                                                                                        editButton_actionPerformed(event);
                                                                                                                                                                                              addButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void addButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 editButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Editting existing connection links in a componentContent
                                                                                                                 Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Adding more connection links to a componentContent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (object == cancelButton)
                                                                                                                                                                                                                                                                                                                else if (object == deleteButton)
                                                                                                                                                                                                                                                                                                                                                                                          else if (object == saveButton)
                                                                                                                                                                                                                                   else if (object == editButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (String)this.componentsComboBox.getSelectedItem();
                                                                                                                                                      if (object == addButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Launch ConnectionLinksFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Launch ConnectionLinksFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String s =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void
                                            event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com, symantec. itools. swing. borders. Line Border line Border 1 = new
                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JComboBox componentsComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                               com.sun.java.swing.JComboBox MSWordComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JComboBox MSExcelComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JComboBox dataComboBox = new
                                                                                                                                                    com.sun.java.swing.JLabel componentLabel = new
                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JButton connectButton = new
com.sun.java.swing.JButton cancelButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JLabel JLabel7 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JLabel JLabel8 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JPanel JPanel 1 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JLabel JLabel9 = new
                                                                          com.sun.java.swing.JLabel JLabel5 = new
                                                                                                                                                                                                                                 com.sun.java.swing.JLabel JLabel6 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.symantec.itools.swing.borders.LineBorder();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //{DECLARE_MENUS
//}}
                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JButton();
                                     com.sun.java.swing.JButton();
                                                                                                                                                                                         com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                        com.sun.java.swing.JLabel();
                                                                                                               com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JPanel();
```

```
componentsComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                           public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.currentComponent = (String)checkInput(selectedItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( !selectedItem.equals(COMPONENT_TYPE_TITLE) ){
                                     cancelButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if (object == componentsComboBox)
                                                                                                                                                                                                                                                                                                 class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    File f = (File)searchPath(this.currentComponent);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   componentsComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( event.getStateChange() == event.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( !this.currentComponent.equals("") )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          selectedItem = (String)event.getItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String selectedItem = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Select an item in the combo box
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setButtonEnabled( true );
                                                                                                          clearComboBoxes();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      clearComboBoxes();
                                                                                                                                                setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if(!f.exists()){
                                                                                                                                                                                         dispose();
  public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void
                                                                  (new ConnectionLinksFrame(this, s, BUTTONS[1])).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (new ConnectionLinksFrame(this, s, BUTTONS[2])).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                           deleteButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               saveButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * Save all link files under Component Content directory of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for( int i=0; i<LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (String)this.componentsComboBox.getSelectedItem();
                                 (String)this.componentsComboBox.getSelectedItem();
                                                                                                                                                                                                                                                           * Delete connection links in a componentContent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          saveLinkFile(LINK_FILE_NAMES[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Clear all items in every combo box
                                                                                                                                                                                                                     * Launch ConnectionLinksFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Exit ComponentContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clearComboBoxes();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * currentComponent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dispose();
String s =
                                                                                                                                                                                                                                                                                                                                                                                                                                                  String s =
                                                                                                                                                                                                                                                                                                                                  public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void
```

```
* Add/Delete/Edit/Save button only active when a step is selected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public void searchFiles(File aFile, String fileType){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 br = new BufferedReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(fileType.equals(LINK_FILE_NAMES[0])){
                                                                                                                                                                                        public void setButtonEnabled( boolean flag ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             while( (item = br.readLine()) != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Search and get the info from link files
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.textComboBox.addItem(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * @param fileType : a name of link file
                                                                                                                                                                                                                                                                                          deleteButton.setEnabled( flag );
                                                                                                                                                                                                                                                                                                                         saveButton.setEnabled(flag);
                                                                                                                                                                                                                       addButton.setEnabled( flag );
                                                                                                                                                                                                                                                        editButton.setEnabled( flag );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @param string: the output string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   File f = new File(aFile, fileType);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param aFile: a link file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BufferedReader br = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       * Short cut to print the output
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      System.out.println(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     void debug( String s ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String item = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( br != null ){
                                                                                               **/
JOptionPane.showMessageDialog(this, selectedItem+" does
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aFile = new File(f, COMPONENT_CONTENT_DIR);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if(!s.equals(COMPONENT_CONTENT_DIR)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if( selectedItem.equals(COMPONENT_TYPE_TITLE) ){
                                                              JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                        if( s.equals(COMPONENT_CONTENT_DIR) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     searchFiles(aFile, (String)list[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for( int i=0; iiii++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                       setButtonEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else if( aFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      setButtonEnabled( true );
                                                                                                                                                                                            for( int j=0; j<list.length; j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setButtonEnabled( true );
                                                                                                                                                                                                                                                                                                                                                      if(!aFile.isDirectory()){
                                                                                                                                                                                                                                                                                                                           aFile = new File(f, s);
                                                                                                                                                                                                                             String s = (String)list[j];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ist = aFile.list();
                                                                                                                                                                                                                                                                                                                                                                                       aFile.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       j = list.length;
                                                                                                                                                             String[] list = f.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   setButtonEnabled( false );
                                                                                                                                                                                                                                                                                                                                                                                                                          i= list.length;
                                                                                                                                                                                                                                                           File aFile = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aFile.mkdir();
                                                                                                                              else if( f.exists() ){
                               not exist!", "Alert Message",
```

```
else if( fileType.equals(LINK_FILE_NAMES[1]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if( fileType.equals(LINK_FILE_NAMES[3]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else if( fileType.equals(LINK_FILE_NAMES[4]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else if( fileType.equals(LINK_FILE_NAMES[5]) ){
                                                                                                                                                                                                                                                                                                                        else if( fileType.equals(LINK_FILE_NAMES[2])){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          br = new BufferedReader( new FileReader(f));
                                           br = new BuffercdReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                                    br = new BufferedReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   br = new BufferedReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          br = new BufferedReader( new FileReader(f))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.MSExcelComboBox.addItem(item);
                                                                                                                                                               this.MSWordComboBox.addItem(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.URLComboBox.addItem(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                while( (item = br.readLine()) != null ){
                                                                                                                     while ((item = br.readLine()) != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                 while( (item = br.readLine()) != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       while( (item = br.readLine()) != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.dataComboBox.addItem(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( br != null ){
                                                                                  if( br != null ){
                                                                                                                                                                                                                                                                                                                                                                                                          if(br!=null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( br != null ){
```

```
//To convert the string of selected item into the file path
                                                                                                                                                                                                                                                                                                                                                                                                                                                        * Form an absolute path for a selected component
                                                                      this.CAPSComboBox.addItem(item)
                                     while ((item = br.readLine()) != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String fn = (String)this.fnList.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  char[] ca = (char[])sub2.toCharArray();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @return File which is formed by a string s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String sub2 = s.substring(fn.length());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String sub = s.substring(0,fn.length());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          @param s: a selected component name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for( int i=0; i<this.fnList.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for( int j=0; j<ca.length; j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     result = s3.compareTo("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public File searchPath( String s){
                                                                                                                                                                                                                                                                                  debug("IOException: "+io);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    String s3 = ca[j]+""
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          i = this.fnList.size();
                                                                                                                                                                                                                                            catch( IOException io ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           thePath= sub+"\\";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(sub.equals(fn)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String the Path = null;
if( br != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     int result = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 s = "s-"+s;
```

```
this.MSWordComboBox.addItem(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.MSExcelComboBox.addItem(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.dataComboBox.addItem(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Set personnel object names in dataComboBox
                                                                         this.MSWordComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                     * Set excel file names in MSExcelComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.MSExcelComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.dataComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void setExcelLink(Vector v){
                                   public void setWordLink(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void setDataLink(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                               * @param v : a vector of links
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for( int i=0; i<v.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Set URL in URLComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param v : a vector of links
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * @param v : a vector of links
                                                                                                        for( int i=0; i<v.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for( int i=0; i<v.size(); i++ ){
                                                                    StringTokenizer st = new StringTokenizer(sub2,"-");
                                                                                                                                                                                                                                                                                                  thePath = thePath+"\\"+st.nextToken();
                                                                                                                                                                                                                        st = new StringTokenizer(_after,".");
                                                                                                          String before_ = st.nextToken("-");
                                                                                                                                                                                                                                                                                                                                                                                                          else if( (result > 0) && (j==ca.length - 1)){
                                                                                                                                                                                    String_after = st.nextToken("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.textComboBox.addItem(v.elementAt(i));
                                                                                                                                                                                                                                                              while(st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Set word file names in MSWordComboBox
                                                                                                                                                 thePath = thePath+before_;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     File f = new File(this.pathName,thePath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.textComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Set text file names in textComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                   the Path = the Path + sub 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void setTextLink(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for( int i=0; i<v.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * @param v : a vector of links
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param v : a vector of links
if (\text{result} == 0)
                                      =ca.length;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             return f;
```

```
* @param fileType: a type of file, e.g., txt.link, data.link, ...
                                                                                                                  bw.write((String)comboBox.getItemAt(i)+"\n");
                                                                                 for( int i=0; i<comboBox.getItemCount(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else if( fileType.equals(LINK_FILE_NAMES[1]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if( fileType.equals(LINK_FILE_NAMES[2])){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if( fileType.equals(LINK_FILE_NAMES[3]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if( fileType.equals(LINK_FILE_NAMES[4]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public JComboBox findComboBox(String fileType){
       BufferedWriter bw = new BufferedWriter(fw);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @return JComboBox: a combo box of fileType
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(fileType.equals(LINK_FILE_NAMES[0])){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Search a combobox matchs with file Type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              comboBox = this.MSExcelComboBox;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  comboBox = this.MSWordComboBox;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            comboBox = this.URLComboBox;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              comboBox = this.dataComboBox;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    comboBox = this.textComboBox;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JComboBox comboBox = null;
                                                                                                                                                                                                                                                                                                                                                                                                                      debug("IOException: "+io);
                                                                                                                                                                                                                                                                                                                                                                             catch( IOException io ){
                                             ){ | llnu = | mq ) |
                                                                                                                                                                                                                                   bw.flush();
                                                                                                                                                                                                                                                                       bw.close();
                                                                                                                                                                                                                                                                                                             fw.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       File(f.getAbsolutePath()+"\\"+COMPONENT_CONTENT_DIR+"\\"+fileT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JComboBox comboBox = (JComboBox)findComboBox( fileType );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * @param fileType: a type of file, e.g., txt.link, data.link, ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.CAPSComboBox.addItem(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             File f = (File)searchPath(this.currentComponent);
                                                                                                           this.URLComboBox.addItem(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for( int i=0; i<comboBox.getItemCount(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             items.addElement(comboBox.getItemAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.CAPSComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                      * Set caps file names in CAPSComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void saveLinkFile( String fileType)
                                 this.URLComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FileWriter fw = new FileWriter(f);
                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void setCAPSLink(Vector v){
public void setURLLink(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vector items = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                * @param v : a vector of links
                                                                       for( int i=0; i<v.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for( int i=0; i<v.size(); i++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Save all link files
```

```
,* ComponentType: Create a Component Type object and save it in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public class ComponentType implements Serializable (
                                                                                                                                                                                                return this.componentLabel.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * componentName: component type name
                             Message", JOptionPane. ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * componentID: component type ID
"Error
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        private String componentID;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                import java.io.Serializable;
                                                                                                                                                                                                                                                                                                                                return selectedItem;
                                                                 return null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     component.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     package Cases;
                                                                                                                                                                   else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOptionPane.showMessageDialog(this, selectedItem+"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      boolean isLetter = (new Character(c)).isLetter(c);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String sub2 = (selectedItem.substring(j+1)).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( !sub2.equals(this.componentLabel.getText()) ){
                           else if( fileType.equals(LINK_FILE_NAMES[5]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * @param selectedItem: a selected component in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Check the selected component is valid or not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * @return String: null/valid component name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public String checkInput(String selectedItem ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      char c = (char)sub2.charAt(0);
                                                                                                                                                                                                                                                                                                                                                                                               MSWordComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                               MSExcelComboBox.removeAllItems();
                                                           comboBox = this.CAPSComboBox;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAPSComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     int j = selectedItem.indexOf("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             URLComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                               dataComboBox.removeAlIItems();
                                                                                                                                                                                                                                                                                                                                                           textComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                           public void clearComboBoxes(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( isLetter ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if( selectedItem != null ){
                                                                                                                                                                                                                                                            * Refresh all comboboxes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          is invalid component!",
                                                                                                                             return comboBox;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     componentComboBox
```

```
* Implement Cases Title where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Launched by ComponentContentFrame's buttons(Add, Edit, or Delete)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public class ConnectionLinksFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FileDialog fd = new FileDialog(this, "Open", FileDialog.LOAD);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * ConnectionLinksFrame: Create/Edit/Delete links of a selected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 implements CasesTitle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * update : to check that all the changes is update yet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public String getComponentDescription(){
                                      return this.componentDescription;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * fd: instantiate an open fileDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         boolean update = true;
                                                                                                                                                                                                                                                                                                                                                                                                mport java.awt. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                  mport java.util. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        import java.io.*;
                                                                                                                                                                                                                                                                                                                            package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           component
                                                                                                                                                                                                                                                                                                                 * This ComponentType constructor is used to create a ComponentType
                                                                                                                                                                                                                                                                                                                                                                                                                             public ComponentType( String componentID, String componentName,
                                                                                                                                     * componentDescription: component type description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.componentDescription = componentDescription;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.componentName = componentName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.componentID = componentID;
                                                                                                                                                                                                         private String componentDescription;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public String getComponentName(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @return componentDescription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public String getComponentID(){
                               private String componentName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return this.componentName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String componentDescription ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @return componentName
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return this.componentID;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public ComponentType(){}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @return componentID
```

```
titleLabel.setHorizontalAlignment(com.sun.java.swing.SwingCons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        titleLabel.setFont(new Font("Dialog", Font.BOLD, 18));
                                                                                                                                                                                                                                                                                                                               // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                   // components to the visual environment. It instantiates
                                                                                // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                 // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                               // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 titleLabel.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              itemScrollPane.getViewport().add(itemList);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     itemScrollPane.setBounds(15,165,470,200);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             exitButton.setActionCommand("Cancel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      updateButton.setActionCommand("OK");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    updateButton.setBounds(164,400,75,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                getContentPane().add(itemScrollPane);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             setTitle("Component Content Editor");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                exitButton.setBounds(260,400,75,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getContentPane().add(updateButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               titleLabel.setBounds(25,5,450,30);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      getContentPane().add(exitButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getContentPane().add(titleLabel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     itemList.setBounds(0,0,467,197);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    itemScrollPane.setOpaque(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            updateButton.setText("Update")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      exitButton.setText("Exit");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 titleLabel.setText("jlabel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                    // [INIT_CONTROLS
public ConnectionLinksFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setSize(500,450);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setVisible(false);
                                                                                                                                                                                                                                                                                           syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tants.CENTER);
                                                                                                                                                                                                                                                                                                                                                                           unable to back
                                                                                                                            when you add
                                                                                                                                                                                                          and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vector[] stored Vector = {new Vector(), new Vector(), new Vector(), new
                                                                                   * compContentFrame: get the current ComponentContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * button: name of button of ComponentContentFrame to launch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * currentPosition: position of selected item in the itemList
                                                                                                                                                                                                                                                                                                                                                                        DefaultListModel listModel = new DefaultListModel();
                                                                                                                                                                   ComponentContentFrame compContentFrame = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * storedVector: an array of vector of all links
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vector(), new Vector(), new Vector()};
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * selectedItem : current link type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           private String selectedItem = null;
                                                                                                                                                                                                                                                                                           * listModel: to monitor item list
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Build ConnectionLinksFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   private int currentPosition = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ConnectionLinksFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               String button = null;
```

getContentPane().add(connectionComboBox); connectionComboBox.setBounds(115,60,270,22);

* set default model for itemList

itemList.setModel(listModel);

 $\label{lem:com:sun.java.swing.SwingConstants.CENTER)} I Label 1. set Horizontal Alignment (com. sun. java.swing. Swing Constants. CENTER);$

ILabel1.setText("Connection Links");
getContentPane().add(JLabel1);
JLabel1.setForeground(java.awt.Color.black);
JLabel1.setBounds(15,140,470,22);
getContentPane().add(tempTextField);
tempButton.setText("jbutton");
tempButton.setActionCommand("jbutton");
getContentPane().add(tempButton);
tempButton.setActionCommand("jbutton");
getContentPane().add(tempButton);
browseButton.setActionCommand("Browse");
browseButton.setActionCommand("Browse");
getContentPane().add(browseButton);
browseButton.setActionCommand("Browse");
}

// (INIT_MENUS

- {{

//{REGISTER LISTENERS

SymItem ISymItem = new SymItem(); connectionComboBox.addItemListener(ISymItem); SymAction ISymAction = new SymAction(); tempButton.addActionListener(ISymAction); updateButton.addActionListener(ISymAction); exitButton.addActionListener(ISymAction); SymMouse aSymMouse = new SymMouse(); itemList.addMouseListener(aSymMouse); browseButton.addActionListener(ISymAction);

**/

```
* Constructor is launched by buttons from ComponentContentFrame
                                                                                                       connectionComboBox.addItem(LINK_FILE_NAMES[i]);
                                                                 for( int i=0; i<LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                             public ConnectionLinksFrame(ComponentContentFrame
* create a combobox with all type of links
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public ConnectionLinksFrame(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.compContentFrame = compContentFrame;
                                                                                                                                                                                                                                                                                                                                                                                  compContentFrame, String title, String button){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.tempButton.setText(button);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.titleLabel.setText(title);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.button = button;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            setListModel();
                                                                                                                                                                                                                                                                                                                                                                                                                      this();
```

```
public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                              com.sun.java.swing:JComboBox connectionComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 class SymItem implements java.awt.event.ItemListener
                                                                com.sun.java.swing.JScrollPane itemScrollPane = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if (object == connectionComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JTextField tempTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               connectionComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JButton browseButton = new
                                                                                                                                                                                                           com.sun.java.swing.JButton updateButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JButton tempButton = new
com.sun.java.swing.JButton exitButton = new
                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JLabel JLabel1 = new
                                                                                                                                        com.sun.java.swing.JList itemList = new
                                                                                                                                                                                                                                                                                                               com.sun.java.swing.JComboBox();
                                                                                                  com.sun.java.swing.JScrollPane();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    //{ DECLARE_MENUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JTextField();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JButton();
                                   com.sun.java.swing.JButton();
                                                                                                                                                                                                                                            com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JLabel();
                                                                                                                                                                         com.sun.java.swing.JList();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                            // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // Adjust size of frame according to the insets and menu
                                                                                                (new ConnectionLinksFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JMenuBar menuBar =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JLabel titleLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           insets.bottom + size.height + menuBarHeight);
                                   static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                   Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  menuBarHeight =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int menuBarHeight = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    //{DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if (menuBar != null)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      menuBar.getPreferredSize().height;
                                                                                                                                                                                                                                                                                                                                                                                                                      super.addNotify();
                                                                                                                                                                                                      public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getRootPane().getJMenuBar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                 addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         bar
```

```
void updateButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Confirmination dialog to give a user one more chance to update all
      void tempButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             void exitButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                int index = (int)connectionComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Update all link comboboxes in ComponentContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        String s = (String)tempTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * the change, and exit ConnectionLinksFrame.
                                                                                                                                                                                                                           this.tempTextField.setText("");
                                                                                                               String s = tempTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                searchButton(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     searchLink(index);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(!s.equals(""))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update = true;
                                                                                                                                                                                        searchButton(s);
                                                                                                                                                  if(!s.equals("")){
                                                                                                                                                                                                                                                              update = false;
                                                                                                                                                                                                                                                                                                                                                                             update = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(!update){
                                                                                                                                                                                                                                                                                                                                          else{
                                            event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             browseButton_actionPerformed(event);
                                                                                                        connectionComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               updateButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tempButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     exitButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                            listModel.addElement(storedVector[i].elementAt(j));
                                                                                                                                                                                                                                                                                         selectedItem = (String)event.getItem();
for( int i=0; i<LINK_FILE_NAMES.length; i++ ){</pre>
                                                                                                                                                                                 if( event.getStateChange() == event.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                  if( selectedItem.equals(LINK_FILE_NAMES[i]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if (object == browseButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else if (object == updateButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if (object == exitButton)
                                                                                                                                                                                                                                                                                                                                                                                                         for( int j=0; j<storedVector[i].size(); j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (object == tempButton)
                                                                                                                                                                                                                                                         this.tempTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     i= LINK_FILE_NAMES.length;
                                                                                                                                                                                                                 listModel.removeAllElements();
* Monitor what link type is selected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             event)
```

```
* Search which comboBox in ComponentContentFrame needs to update
                                                                                                                                                                                                                        void itemList_mouseClicked(java.awt.event.MouseEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                this.currentPosition = (int)this.itemList.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * @param index : an index of selected item in connectionComboBox
                                                                                                                                                                                                                                                                                                                                       String s = (String)this.itemList.getSelectedValue();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(this.button.equals(BUTTONS[i])){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for( int i=0; i<BUTTONS.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Search which button (Add/Delete/Edit) from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param s : button title which is passed from
                                                                                                                                                                                                                                                                                                                                                                            this.tempTextField.setText(s);
                                                                                                                                                                                                                                                                                                   if( event.getClickCount() > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       void searchButton(String s)(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         i=BUTTONS.length;
                                                                                                                                               * Monitor which item is selected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        searchVector(s,i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ComponentContentFrame to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ComponentContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . * launch this frame.
                                                                                                                 **/
                                   int i = JOptionPane.showOptionDialog(this, "You did not update the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Connect to FileDialog to let user to select a file insteads of typing, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       void browseButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void mouseClicked(java.awt.event.MouseEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          itemList_mouseClicked(event);
                                                                                                                                        JOptionPane.WARNING_MESSAGE, null, options, options[0]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                class SymMouse extends java.awt.event.MouseAdapter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tempTextField.setText(fd.getDirectory()+fileName);
                                                                                                       "Warning", JOptionPane.DEFAULT_OPTION,
Object[] options = { "OK", "CANCEL" };
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if (object == itemList)
                                                                                                                                                                                                                        updateButton_actionPerformed(event);
                                                                    last change yet. Would you like to update?",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * entire path of the file to the textfield
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String fileName = fd.getFile();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(fileName!= null)
                                                                                                                                                                                                                                                                                                                                setVisible (false);
                                                                                                                                                                                  if(i==0)
                                                                                                                                                                                                                                                                                                                                                                        dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fd.show();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               return the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               event)
```

```
JOptionPane.showMessageDialog(this, s+" is already
                                                                                                                                                                                                                                                                                                          * @param index : the index of selected link type and it use to match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        storedVector[i].removeElementAt(this.currentPosition);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        storedVector[i].removeElementAt(this.currentPosition);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              storedVector[i].insertElementAt(s,this.currentPosition);
                                                                                                                                                                                            * Search which vector is respective with the selected link type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  listModel.removeElementAt(this.currentPosition);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              listModel.removeElementAt(this.currentPosition);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    listModel.insertElementAt(s,this.currentPosition);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Warning Message"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if( selectedItem.equals(LINK_FILE_NAMES[i]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for( int i=0; i<LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                               * the element in array vector, storedVector.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         storedVector[i].addElement(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                      void searchVector(String s, int index){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   listModel.addElement(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(!listModel.contains(s)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if( listModel.contains(s) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOptionPane.ERROR_MESSAGE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if( index==1){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if( index==2){
                                                                                                                                                                                                                                                                        * @param s : a link type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( index==0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          in the list!",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (JComboBox)this.compContentFrame.findComboBox(LINK_FILE_NAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.compContentFrame.setCAPSLink(storedVector[5]);
                                                                                                                                                                                         this.compContentFrame.setWordLink(storedVector[1]);
                                                                                                                                                                                                                                                                                                     this.compContentFrame.setExcelLink(storedVector[2]);
                                                                         this.compContentFrame.setTextLink(storedVector[0]);
                                                                                                                                                                                                                                                                                                                                                                                                              this.compContentFrame.setDataLink(storedVector[3]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.compContentFrame.setURLLink(storedVector[4]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 listModel.addElement(storedVector[0].elementAt(j));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for( int j=0; j<LINK_FILE_NAMES.length; j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                storedVector[j].addElement(cb.getItemAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Set the content of a selected link file into the list
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for( int j=0; j<storedVector[0].size(); j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if( this.compContentFrame != null ){
void searchLink(int index){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int c =cb.getItemCount();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for( int i=0; i<c; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JComboBox cb =
                                                                                                                                                                                                                                                               else if( index == 2 ){
                                                                                                                                                                                                                                                                                                                                                                          else if( index == 3 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if( index == 4 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if( index == 5 ){
                                                                                                                                                   else if( index == 1 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      void setListModel(){
                                      if (index == 0)
```

```
// what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // the components. To modify the code, only use code
                                                                                                                                                                       DefaultListModel componentListModel = new DefaultListModel();
                                                                                                                                                                                                                                                                                                                                                  DefaultListModel decomposeListModel = new DefaultListModel();
                                                                                                                                                                                                                                                                            * Monitor all decomposed components of the selected component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      componentScrollPane.setBounds(15,90,270,230);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     getContentPane().add(componentScrollPane);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    componentScrollPane.setOpaque(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public DecomposeListDialog(JFrame parent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               getContentPane().setLayout(null);
                                                                                                  * Monitor all components of the selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //{ INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setSize(585,400);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Build DecomposeListDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setModal(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                super(parent);
TraceFrame tf = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * DecomposeListDialog: a dialog stores all decomposed components of a
                            JOptionPane.showMessageDialog(this, s+" is not in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public class DecomposeListDialog extends com.sun.java.swing.JDialog
                                                                                                  "Warning Message",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * It is launched by decomposeComboBox of TraceFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * It has 2 lists, components and decomposed components
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           i= LINK_FILE_NAMES.length;
                                                                                                                                 JOptionPane.ERROR_MESSAGE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Parent frame of this dialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              import java.util. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               import java.io.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       selected step.
                                                                 the list!",
```

JLabel2.setVerticalAlignment(com.sun.java.swing.SwingConstant public DecomposeListDialog(TraceFrame tf, String title, Vector * TraceFrame use this constructor to launch DecomposeListDialog * setModel for componentList and decomposeList componentList.addMouseListener(aSymMouse); componentList.setModel(componentListModel); decomposeList.setModel(decomposeListModel); cancelButton.addActionListener(ISymAction); JLabel2.setForeground(java.awt.Color.black); SymMouse aSymMouse = new SymMouse(); SymAction ISymAction = new SymAction(); OKButton.addActionListener(ISymAction); componentListModel.addElement(itemVector.elementAt(i)); for(int i=0; i<itemVector.size(); i++){ JLabel2.setBounds(300,68,270,22); JLabel2.setText("Decompose"); getContentPane().add(JLabel2) // (REGISTER_LISTENERS this.titleLabel.setText(title); .his((JFrame)tf); setTitle(title); this.tf = tf; s.BOTTOM); itemVector) JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConsta titleLabel.setHorizontalAlignment(com.sun.java.swing.SwingCons J. abell. set Vertical Alignment (com. sun. java. swing. Swing Constant titleLabel.setFont(new Font("Dialog", Font.BOLD, 18)); lecomposeScrollPane.setBounds(300,90,270,230); decomposeScrollPane.getViewport().add(decomposeList); titleLabel.setForeground(java.awt.Color.black); ILabel1.setForeground(java.awt.Color.black); getContentPane().add(decomposeScrollPane); cancelButton.setActionCommand("Cancel"); cancelButton.setBounds(303,340,75,22) componentList.setBounds(0,0,267,227); decomposeList.setBounds(0,0,267,227) decomposeScrollPane.setOpaque(true); OKButton.setActionCommand("OK"); OKButton.setBounds(207,340,75,22); getContentPane().add(cancelButton); itleLabel.setBounds(42,5,500,30) ILabel1.setBounds(15,68,270,22) getContentPane().add(titleLabel); getContentPane().add(OKButton); cancelButton.setText("Cancel"); Label1.setText("Component"); getContentPane().add(JLabel1); titleLabel.setText("jlabel"); OKButton.setText("OK");

nts.CENTER);

s.BOTTOM);

nts.CENTER);

tants.CENTER);

componentScrollPane.getViewport().add(componentList);

```
public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cancelButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     void OKButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                   com.sun.java.swing.JScrollPane decomposeScrollPane = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if (object == cancelButton)
                                                                     com.sun.java.swing.JButton cancelButton = new
                                                                                                                                                                                                                                                                                         com.sun.java.swing.JList decomposeList = new
com.sun.java.swing.JButton OKButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Return a selected decompose step to TraceFrame
                                                                                                                                         com.sun.java.swing.JLabel titleLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (object == OKButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JLabel JLabel2 = new
                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JLabel JLabel1 = new
                                                                                                                                                                                                                                                         com.sun.java.swing.JScrollPane();
                                                                                                           com.sun.java.swing.JButton();
                                  com.sun.java.swing.JButton();
                                                                                                                                                                                com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JList();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JScrollPane componentScrollPane = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // Adjust size of frame according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JList componentList = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Insets insets = getInsets();
                                                                                                      public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (frameSizeAdjusted)
                                                                                                                                                                                                                   setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                //{DECLARE_CONTROLS
                                                                                                                                                                                                                                                         super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JScrollPane();
                                                                                                                                                                                                                                                                                                                                                                                                  public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              insets.bottom + size.height);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JList();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               addNotify.
```

```
for( int i=0; i<decomposedSteps.size(); i++
                                                                                                                                                                                  void componentList_mouseReleased(java.awt.event.MouseEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOptionPane.showMessageDialog(this, currentPath+"
                                                                                                                                                                                                                                                                                                                                                                                                                                     this.tf.checkSelection((String)this.componentList.getSelectedValue());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (currentPath != null) && (!currentPath.equals("")) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       decomposeListModel.addElement(decomposedSteps.elementAt(i));
                                                                                                         * View all decomposed components of the selected component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Vector)findSteps(currentComponent,new File(currentPath));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Vector decomposedSteps = new Vector();
                                                                                                                                                                                                                                                                                                                              decomposeListModel.removeAllElements();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (decomposedSteps != null) &&
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        step is an atomic component. Please reselect it!",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Message", JOptionPane. ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.tf.convertToThePath(currentComponent);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(!currentComponent.equals("")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         File f = new File(currentPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     decomposedSteps =
                                                                                                                                                                                                                                                                                                                                                                                                         String currentComponent =
                                                                                                                                                                                                                                                                                       if(event.getClickCount() > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String currentPath =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (decomposedSteps.size() > 0) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(f.exists()){
                                                                                                                                                                                                                                                                                                                                                                if(this.tf!= null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        componentList_mouseReleased(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public void mouseReleased(java.awt.event.MouseEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void cancelButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        class SymMouse extends java.awt.event.MouseAdapter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Object object = event.getSource();
                                                                                                                                           String s = this.tf.convertToThePath(selectedItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if (object == componentList)
                                                                                                                                                                                                                this.tf.setSelectedItem(s, selectedItem);
                                  (String)this.decomposeList.getSelectedValue();
                                                                    if( selectedItem != null )(
String selectedItem =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Exit DecomposeListDialog
                                                                                                                                                                                                                                                       setVisible(false);
                                                                                                         if( this.tf != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         setVisible(false);
                                                                                                                                                                                if(s!= null){
                                                                                                                                                                                                                                                                                           dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                           else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          event)
```

```
* fileDialog: use to get a personnel objects under stakeholder directory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * casesFrame: a parent frame launch this dialog from two menu items,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * deleteProject: a flag to define a purpose of using this dialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * DeleteDialog: a dialog uses to delete a personnel object and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public class DeleteDialog extends com.sun.java.swing.JDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tools --> Personnel --> Delete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Project --> Delete Project and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    boolean deleteProject = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FileDialog fileDialog = null;
                                                                                                                                                                                                                                                                                                                                                                                                                 import com.sun.java.swing.*;
return decomposes;
                                                                                                                                                                                                                                                                                                                                                   import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                   import java.io.*;
                                                                                                                                                                                                                                                                                      package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * a project
                                                                                                                                                                                                                                                  * Find all decomposed components of the selected component
                                                                                                                                                                                                                                                                                                                                                                             * @return decomposes vector contains all decomposed
                                                                                                                                                                                                                                                                                                                * @param temp: a string of selected component name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int num = Integer.parseInt(f2.getName());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         temp2 = temp+"."+f2.getName();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 temp2 = temp+"-"+f2.getName();
                                                                                                                                                                                                                                                                                                                                              * @param f : a file with a name temp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                decomposes.addElement(temp2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              int index = temp.indexOf("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Vector decomposes = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vector findSteps(String temp, File f){
                                                                                                                                                                                                                                                                                                                                                                                                             components of the component temp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for(int i=0; iii<++){</li>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String[] list = (String[])f.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     File f2 = new File(f, list[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String temp2 = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  findSteps(temp2,f2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             catch(Exception e){}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if(f2.isDirectory()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (index > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           else{
```

```
projectTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public DeleteDialog(CasesFrame casesFrame, String title){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        projectComboBox.setBounds(161,30,128,20);
                                                                                                                                                                                                                                                                                               browseButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                projectComboBox.addItemListener(ISymItem);
                                                                                                                                                                                                                                                           cancelButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * @param title: "Delete Project" or "Delete Personnel Data"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        projectTextField.setBounds(10,30,150,20);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     getContentPane().add(projectComboBox);
                                                                                                                                                                                 SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                getContentPane().add(projectTextField);
                                                                                                                                                                                                                      OKButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * CasesFrame uses this constructor to launch this dialog
                                   cancelButton.setBounds(152,70,73,20);
                                                                                                                                                                                                                                                                                                                               SymItem ISymItem = new SymItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             projectTextField.setEditable(false);
getContentPane().add(cancelButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param casesFrame: current CasesFrame
                                                                                                                                            //{REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( title.equals("Delete Project") ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.casesFrame = casesFrame;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public DeleteDialog()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this(title);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cancelButton.setActionCommand("Cancel");
                                                                                                                                                   * casesDirectory: the entire path of current project, eg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OKButton.setActionCommand("OK");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OKButton.setBounds(74,70,73,20);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().add(OKButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cancelButton.setText("Cancel")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OKButton.setText("OK");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  setTitle("Delete Project");
                                                                                                                                                                                                                                                                                                                                                                                                                                             public DeleteDialog(Frame parent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //{ INIT_CONTROLS
                                                                                                                                                                                                                                                              public String casesDirectory = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            setSize(300,130);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   setModal(true);
                                          CasesFrame casesFrame = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          super(parent);
                                                                                                                                                                                          F:\Cases\projectName\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and initializes
```

```
setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                      // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JTextField filenameTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // Adjust size of frame according to the insets
                                                                                                                                                                                                                                            (new DeleteDialog()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JButton OKButton = new
                                 setLocation(50, 50);
                                                                                                                                                                       static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               //{DECLARE_CONTROLS
                                                                   super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JTextField();
                                                                                                                                                                                                                                                                                                                                                   public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          " Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 insets, bottom + size. height);
if (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                          addNotify.
                                                                                                                                   String[] list = this.casesFrame.CASESDIRECTORY.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         browseButton.setActionCommand("Browse");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 filenameTextField.setBounds(10,30,200,20)
                                                                                                                                                                                                                                                                              File aFile = new File(casesDirectory, list[i]);
                               this.casesFrame.CASESDIRECTORY.getAbsolutePath()+"\\";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(filenameTextField);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              browseButton.setBounds(211,30,78,20);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fileDialog = new FileDialog(this.casesFrame, title);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().add(browseButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else if( title.equals("Delete Personnel Data") ){
                                                                                                                                                                                                                                                                                                                                                 projectComboBox.addItem(list[i]);
                                                                   projectTextField.setText(casesDirectory);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       browseButton.setText("Browse");
                                                                                                                                                                                                                                            for(int i=0; i<list.length; i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public DeleteDialog(String sTitle)
                                                                                                                                                                                                                                                                                                                if( aFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   deleteProject = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            deleteProject = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  setTitle(sTitle);
                                                                                                                                                                                                         if( list.length > 0){
casesDirectory =
```

```
fileDialog.setDirectory(this.casesFrame.STAKEHOLDER.getAbsolutePath
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      filenameTextField.sctText(fileDialog.getDirectory()+fileDialog.getFile());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    void browseButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                       void cancelButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Show fileDialog with current directory is stakeholder and list all
  File aFile = new File(filenameTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fileDialog.setMode(FileDialog.LOAD);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          filenameTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( fileDialog.getFile() != null ){
                                                                                                                                                                                                                                                                                  * Exit DeleteDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fileDialog.show();
                                                                                                      setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                             setVisible(false);
                                        aFile.delete();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 personnel file
                                                                                                                                              dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     event)
                                                                                                                                                                                                                                                                                                                                                                                                 event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              browseButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cancelButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               void OKButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                        class SymAction implements java.awt.event.ActionListener
                                                                                                                                     com.sun.java.swing.JComboBox projectComboBox = new
                                                                                                                                                                                                        com.sun.java.swing.JTextField projectTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     File aFile = new File(projectTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * To check deleteProject or deletePersonnel before delete it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else if (object == browseButton)
                                                                     com.sun.java.swing.JButton browseButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            else if (object == cancelButton)
com.sun.java.swing.JButton cancelButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (object == OKButton)
                                                                                                                                                                  com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                              com.sun.java.swing.JTextField();
                                                                                                      com.sun.java.swing.JButton();
                                 com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          removeAll(aFile);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( deleteProject ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   event)
```

```
* Dependency: Create a Dependency object and save it in dependency.cfg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Dependency object which is used to save in the dependency.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public class Dependency implements Serializable (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * loopName: evolution process name
                                                                                                                                             file.delete();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   private String loopName = null;
                                                                                                                                                                                                                                                       aFile.delete();
if( file.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        import java.io.Serializable;
                                     removeAll(file);
                                                                                                            else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          */
                                                                                                          public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Remove all files under the deleting project before delete the project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * projectComboBox contains all project names under Cases directory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            projectComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                     class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * a user allows to select a project which they want to delete
                                                                                                                                                                                                                  Object object = event.getSource();
                                                                                                                                                                                                                                                  if (object == projectComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( event.getStateChange() == event.SELECTED ){
                                                                                                                                                                                                                                                                                                                               projectComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              projectTextField.setText(casesDirectory+s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   File file = new File(aFile, I[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * @param aFile: the deleting project folder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for( int i=0; i<1.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        String s = (String)event.getItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String[] 1 = aFile.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           void removeAll(File aFile){
                                                                                                                                                 event)
```

```
public String getOutputComponent(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public String getSecondaryInput(){
                                                                                                                                           * @return step : step type name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public String getPrimaryInput(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return this.outputComponent;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      return this.secondaryInput;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       return this.primaryInput;
    return this.loopName;
                                                                                                                                                                                                             public String getStep(){
                                                                                                                                                                                                                                                       return this.step;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * This Dependency constructor is used to create a Dependency object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    outputComponent, String primaryInput, String secondaryInput )(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public Dependency( String loopName, String step, String
                                                                                                                                                                           * outputComponent: output component of the step type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * secondaryInput: secondary input of the step type
                                                                                                                                                                                                                                                                                                                                                      * primaryInput: primary input of the step type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @return loopName: evolution process name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.outputComponent = outputComponent;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.secondaryInput = secondaryInput;
                                                                                                                                                                                                                                                 private String outputComponent = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       private String secondaryInput = null;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.primaryInput = primaryInput;
                                                                                                                                                                                                                                                                                                                                                                                                                            private String primaryInput = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.loopName = loopName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public String getLoopName(){
                                                                     private String step = null;
* step : step type name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public Dependency() {}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.step = step;
```

```
* @return outputComponent: output component of the step type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @return secondaryInput: secondary input of the step type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param secondaryInput: secondary input component
                                                                                                                                                                                                                                                                                                                                                                                     * @return primaryInput : primary input of the step type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void setSecondaryInput( String secondaryInput ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Set secondary input for this Dependency object
```

```
titleLabel.setVerticalTextPosition(com.sun.java.swing.SwingConst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       titleLabel.setHorizontalAlignment(com.sun.java.swing.SwingCons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                titleLabel.setVerticalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                               // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 itleLabel.setForeground(java.awt.Color.black);
                                                                    * isEdit: a flag to keep track the purpose of using this frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        titleLabel.setText("TESTING: ");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               getContentPane().add(titleLabel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       //( [INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                          public EditDecomposeFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   setSize(470,305);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            setTitle("Edit");
                                                                                                                                                                                                                                                 * Build EditDecomposeFrame
                                                                                                                                         boolean isEdit = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ants.BOTTOM);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nts.BOTTOM);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tants.RIGHT);
                                                                                                                                                                                                                                                                                                                                                                                                                                    when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public class EditDecomposeFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * newPath: an absolute path after decompose a selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * EditDecomposeFrame: use to edit/decompose a selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * pathName : an absolute path of a selected step
this.secondaryInput = secondaryInput;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Implements interface I_EditDecompose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           implements CasesTitle, I_EditDecompose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String pathName = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            String newPath = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                  import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      import java.util. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      import java.io. *;
                                                                                                                                                                                                                                                                                                                                                        package Cases;
```

selectedLabel.setVerticalTextPosition(com.sun.java.swing.SwingC selectedLabel.setVerticalAlignment(com.sun.java.swing.SwingCo selectedLabel.setFont(new Font("Dialog", Font.BOLD, selectedLabel.setForeground(java.awt.Color.black); secondaryTextField.setBounds(187,180,270,22); SymAction ISymAction = new SymAction(); JLabel4.setForeground(java.awt.Color.black); saveButton.addActionListener(ISymAction); getContentPane().add(secondaryTextField); saveButton.setActionCommand("Save"); selectedLabel.setText("Selected Label"); exitButton.setActionCommand("Save"); selectedLabel.setBounds(130,6,290,30); exitButton.setBounds(372,258,75,22); getContentPane().add(selectedLabel); saveButton.setBounds(12,258,75,22); getContentPane().add(deleteButton); getContentPane().add(saveButton) selectedLabel.setBackground(new getContentPane().add(exitButton); JLabel4.setBounds(7,180,175,22); deleteButton.setBounds(0,0,0,0) getContentPane().add(JLabel4); //(REGISTER_LISTENERS exitButton.setText("Cancel"); saveButton.setText("Save"); //{INIT_MENUS java.awt.Color(204,204,204)); onstants.BOTTOM); nstants.BOTTOM); 16); JLabel4.setHorizontalAlignment(com.sun.java.swing.SwingConsta JLabel3.setHorizontalAlignment(com.sun.java.swing.SwingConsta JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConsta JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta titleLabel.setFont(new Font("Dialog", Font.BOLD, 18)); outputTextField.setBackground(java.awt.Color.white); stepTextField.setBackground(java.awt.Color.white); JLabel4.setText("Secondary Input Component(s)"); Label3.setText("Primary Input Component(s)"); orimaryTextField.setBounds(187,138,270,22); !Label2.setForeground(java.awt.Color.black); JLabel3.setForeground(java.awt.Color.black); ILabel1.setForeground(java.awt.Color.black); outputTextField.setBounds(187,96,270,22) getContentPane().add(primaryTextField); stepTextField.setBounds(187,54,270,22) getContentPane().add(outputTextField); Label2.setText("Output Component"); getContentPane().add(stepTextField); outputTextField.setEditable(false); JLabel3.setBounds(7,138,175,22); titleLabel.setBounds(3,6,120,30); JLabell.setText("Step Version"); J. Tabell.setBounds(7,54,175,22); JLabel2.setBounds(7,96,175,22); stepTextField.setEditable(false); getContentPane().add(JLabel3); getContentPane().add(JLabel1); getContentPane().add(JLabel2); nts.RIGHT); nts.RIGHT);

```
DataInputStream secondIn = new DataInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DataInputStream primIn = new DataInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public EditDecomposeFrame(String sTitle, String stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * CasesFrame launch this frame through SPIDER --> Decompose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String output, String pathName, int subDir)
                                                                                                                                                                                                                                                                        catch( IOException io ){ System.out.println(io);}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     File f = new File(pathName+"\linput.p");
                                                                                                 this.secondaryTextField.setText(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.titleLabel.setText( "Decompose:" );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.stepTextField.setText( stepName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.selectedLabel.setText( pathName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.outputTextField.setText( output );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.primaryTextField.setText(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.pathName = pathName;
                                                                 if( secondIn != null ){
                                                                                                                                                                                                                                                                                                                                             newPath = this.pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        new FileInputStream(f));

if( primIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(f.exists()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                              isEdit = true;
                                                                                                                                      (String)secondIn.readLine());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (String)primIn.readLine() );
                                  new FileInputStream(f));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DataInputStream primIn = new DataInputStream(
                                                                                                                                                                                                                                       public EditDecomposeFrame(String sTitle, String stepName,
deleteButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                               deleteButton.setActionCommand("Delete");
                                    exitButton.addActionListener(ISymAction);
                                                                                                                                                                      * CasesFrame launch this frame through SPIDER --> Edit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              File f = new File(pathName+"\\input.p");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.selectedLabel.setText( pathName );
                                                                                                                                                                                                                                                                          String output, String pathName)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.stepTextField.setText( stepName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  deleteButton.setBounds(84,258,75,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.outputTextField.setText( output );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.primaryTextField.setText(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(deleteButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.titleLabel.setText("Edit:");
                                                                                                                                                                                                                                                                                                                                                                                                            deleteButton.setText("Delete");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.pathName = pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         f = new File(pathName+"\\input.s");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             new FileInputStream(f));
   if( primIn != null ){
                                                                                                                                                                                                                                                                                                                                                                              //Set Delete button for Edit frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(f.exists()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (String)primIn.readLine());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(f.exists()){
```

```
setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                        // Adjust size of frame according to the insets and menu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JTextField primaryTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JTextField outputTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JTextField stepTextField = new
                                                                                                                                                                                                                                             com.sun.java.swing.JMenuBar menuBar =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JLabel titleLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JLabel JLabel1 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JLabel JLabel2 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JLabel JLabel3 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JLabel JLabel4 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      insets.bottom + size.height + menuBarHeight);
                                                                                                                                                                                                                                                                                                                                                                                   menuBarHeight =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             boolean frameSizeAdjusted = false;
                                                                      frameSizeAdjusted = true;
                                                                                                                                                                                                            Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                               int menuBarHeight = 0;
if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //{DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                              if (menuBar!= null)
                                                                                                                                                                                                                                                                                                                                                                                                                menuBar.getPreferredSize().height;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JTextField();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JTextField();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JTextField();
                                                                                                                                                                                                                                                                                getRootPane().getJMenuBar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JLabel();
                                                                                                                                                                         bar
                                                                                                                                        DataInputStream secondIn = new DataInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                  catch( IOException io ){ System.out.println(io);}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (new EditDecomposeFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         newPath = this.pathName + "\\" + subDir;
                                                                                                                                                                                                                                           this.secondaryTextField.setText(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dimension size = getSize();
                                                                                                                                                                                                        if( secondIn != null ){
                                                                  f = new File(pathName+"\\input.s");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public void addNotify()
                                                                                                                                                                                                                                                                              (String)secondIn.readLine() );
                                                                                                                                                                       new FileInputStream(f));
                                                                                                     if(f.exists()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 addNotify.
```

```
depSecondary.writeBytes(secondaryTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fileOutput = new FileOutputStream(new File(dir, "\\input.s"));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DataOutputStream depSecondary = new DataOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FileOutputStream fileOutput = new FileOutputStream(new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    depPrimary.writeBytes(primaryTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DataOutputStream dcpPrimary = new DataOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( checkInputs(secondaryTextField.getText())) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( !secondaryTextField.getText().equals("") ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( oldFile.exists() && newFile.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( !primaryTextField.getText().equals("") ){
                                                                                                                                                                                                                                                                                          File oldFile = new File(this.pathName,
                                                                                                                                                                                                                                                                                                                                                                                                  File(newPath, COMPONENT_CONTENT_DIR);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 copyFile(oldFile, newFile);
    File dir = new File(newPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( depSecondary != null ){
                                                                                                                                                                                                                                                                                                                                                                    File newFile = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( depPrimary != null ){
                                                                                                                                                                                                                                                                                                                               COMPONENT_CONTENT_DIR);
                                                                                                                                                                                  if(dir.isDirectory()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            depPrimary.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               depPrimary.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                          newFile.mkdir();
                                     if(!dir.exists()){
                                                                            dir.mkdir();
                                                                                                                                                                                                                                                     if(!isEdit){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    File(dir, "\\input.p"));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fileOutput );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       fileOutput);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      deleteButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Save all the creations or the changes after decomposing and editting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               saveButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       exitButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       class SymAction implements java.awt.event.ActionListener
com.sun.java.swing.JTextField secondaryTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         saveButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (object == deleteButton)
                                                                                                                                                                                                                                                                                               com.sun.java.swing.JButton deleteButton = new
                                                                          com.sun.java.swing.JLabel selectedLabel = new
                                                                                                                                             com.sun.java.swing.JButton saveButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else if (object == exitButton)
                                                                                                                                                                                                                       com.sun.java.swing.JButton exitButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (object == saveButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                       //{ DECLARE_MENUS
//} }
                                       com.sun.java.swing.JTextField();
                                                                                                                                                                                  com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                       com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JButton();
                                                                                                            com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      event)
```

```
* Copy all link files under Component Content directory into the new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                File newLink = new File(newFile, LINK_FILE_NAMES[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              File oldLink = new File(oldFile, LINK_FILE_NAMES[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BufferedReader br = new BufferedReader (fileReader);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for( int i=0; i < LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BufferedWriter bw = new BufferedWriter (fileWriter);
                                  exitButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FileReader fileReader = new FileReader(oldLink);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FileWriter fileWriter = new FileWriter (newLink);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void copyFile( File oldFile, File newFile ){
                                                                                                                                                                                                                                                                                                                                                                                                                                 * @param newFile: new link files of new atomic
                                                                                                                                                                                                                                                                                                                                                                                              * @param oldFile : old link files of a parent file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             while (line=br.readLine())!= null){
                                                                                                      this.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bw.write(line);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fileReader.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               String line = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fileWriter.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( br != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if( bw != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     br.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bw.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bw.close();
public void
                                                                                                                                                                                                                                                                                                                            decomposed step
                                                                                                                                           dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                int result = JOptionPane.showConfirmDialog( this, "All the files
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     void deleteButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                            catch(FileNotFoundException fex ){ System.out.println(fex);}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and subdirectories will be deleted! Would you like to continue?"
                                                                                                                                                                                                                                                                                   catch(IOException e){System.out.println(e);}
                                                                                                                                        exitButton_actionPerformed(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        File aFile = new File(this.pathName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Message", JOptionPane. YES_NO_OPTION,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     exitButton_actionPerformed(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOptionPane.QUESTION_MESSAGE)
                                                               depSecondary.close();
                             depSecondary.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Confirm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Exit EditDecomposeFrame
                                                                                                    fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Delete this selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 removeAll(aFile);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( aFile.exists() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               //\text{result} = 0 ==> \text{yes}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //\text{result} = 1 ==> \text{no}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if (\text{result} == 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              event)
```

```
* Remove all files under the deleting the selected step before delete the
                                                                                                          * @param aFile: the deteting the selected step folder
                                                                                                                                                                                                                                                                                       File file = new File(aFile, I[i]);
                                                                                                                                                                                                                                                  for( int i=0; i<1.length; i++ ){
                                                                                                                                                                                                               String[] I = aFile.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         file.delete();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aFile.delete();
                                                                                                                                                                               void removeAll(File aFile){
                                                                                                                                                                                                                                                                                                                            if( file.isDirectory() ){
                                                                                                                                                                                                                                                                                                                                                               removeAll(file);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            StringTokenizer st = new StringTokenizer(secondary, ",");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 boolean isLetter = (new Character(c)).isLetter(c);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOptionPane.showMessageDialog(this, s+" is
                                                                                                                                                                               * Check all components in secondary textfield are valid or not
catch(FileNotFoundException f){System.out.println(f);}
                                                                                                                                                                                                                    * @param secondary: a string of secondaryTextField
                                                                                                                                                                                                                                                                                                                          public boolean checkInputs(String secondary ){
                                                                                                                                                                                                                                                                                                                                                               String output = outputTextField.getText();
                                  catch(IOException io ){System.out.println(io);}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              char c = (char)sub2.charAt(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sub2 = (s.substring(j+1)).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String s = (String)st.nextToken();
                                                                                                                                                                                                                                                       * @return boolean: valid or invalide input
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Message", JOptionPane. ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              while (st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(!sub2.equals(output))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( isLetter ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( secondary != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    int j = s.indexOf("-");
                                                                                                                                                                                                                                                                                                                                                                                                    String sub2 = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               return false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                invalid component!",
```

return true;

```
* @return EHLPath: a string of step types in the evolution process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void setLoopNameComboBox( Vector loopVector ); public Vector tokenizeVector(String string);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * I_AVC : an interface for 3 classes - AVCCreateStepFrame
                             * @return EHLName: evolution history process name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void createFiles( Dependency dep, File theFile);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  - AVCMergingFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - AVCSplittingFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void checkPath(Vector v);
                                                                                  public String getEHLName(){
                                                                                                                                                                                                                                                                                     public String getEHLPath(){
                                                                                                               return this.EHLName;
                                                                                                                                                                                                                                                                                                                    return this.EHLPath;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public interface LAVC {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            import java.util. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       import java.io.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * EHLPath: a string of step types in the evolution process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * This EHL constructor is used to create a EHL object
                                                                                                                                                                    * EHL: Create a EHL object and save it in loop.cfg file
                                                                                                             public EHL( String EHLName, String EHLPath ){
                                                                                                                                                                                                                                                                                                                                          * EHLName: evolution history process name
                                                                                                                                                                                                                                                      public class EHL implements Serializable (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.EHLName = EHLName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.EHLPath = EHLPath;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( EHLName == null ){
                                                                                                                                                                                                                                                                                                                                                                                                 private String EHLName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if( EHLPath == null ){
                                                      import java.io.Serializable;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               private String EHLPath;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EHLName = "";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EHLPath = "";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public EHL() {}
package Cases;
```

package Cases;	public void currentDir(String absPath);
import java.util.*; import java.io.*;	public void subDir(String absPath); public Vector getComponents(String stepName, String absPath); public void setComponentContent(String stepName, String
//////////////////////////////////////	absPath); public void setStepContent(TraceFrame traceFrame, String stepName, String absPath):
* I_AVCOpenStep : an interface for AVCOpenStepFrame	public void setTraceFrame(String stepName, String absPath);
THININIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	public void getAtomics(File aFile, vector stored vector); public int findMax(String thePath); public void tokenizer(Vector v. String s):
public void setInitialFrame(VersionControl vc); public void setLoopNameComboBox(Vector loopVector);	public void savePersonnelVector (Vector v);
public void setStepComboBox(Vector stepVector); public void setVersionComboBox(Vector versionVector);	<pre>public Vector getPersonnelVector(); public Vector getAllAtomics();</pre>
	public void saveStepContentVector(Vector v); public Vector getStepContentVector();
	<pre>public Vector getScheduledAtomicVector(); }</pre>
package Cases;	package Cases;
import java.awt.*; import java.awt.event.*;	import java.util.*;
import java.in;	import com.sun.java.swing.*;
Integral Java. dell. ,	
**/	* I_ComponentContent : an interface for ComponentContentFrame
* I_Cases : an interface for CasesFrame */	·*
	public interface I_ComponentContent
<pre>public interface 1_cases{ public void getVersionControl(); public void directoryTree();</pre>	public String checkInput(String selectedItem); public JComboBox findComboBox(String fileType); public void saveLinkFile(String fileType);

public void setInitial(Personnel personnel); * L_Personnel: an interface for PersonnelFrame public Personnel getPersonnelData(); public void setSkillComboBox(Vector v); mport com.sun.java.swing.event.*; mport com.sun.java.swing.*; public interface I_Personnel { import java.awt.event.*; mport java.awt.*; import java.util.*; import java.util.*; import java.io. *; package Cases; package Cases; * L_EditDecompose: an interface for EditDecomposeFrame public void searchFiles(File aFile, String fileType); public void copyFile (File oldFile, File newFile); public boolean checkInputs(String secondary); public void setCAPSLink(Vector v) public void setWordLink(Vector v); public void setExcelLink(Vector v); public void setURLLink(Vector v); public void setDataLink(Vector v); public void setTextLink(Vector v); public File searchPath(String s); public interface I_EditDecompose(import java.io.*; package Cases;

* I_ProjectSchema: an interface for ProjectSchemaFrame

public interface I_ProjectSchema{ public void readDepFile();

public void setCompComboBox(Vector compVector);

public void readInputFiles(String pathName);

public void setDepenEHLComboBox(Vector EHLVector); public void setDependStepComboBox(Vector stepVector); public void setInitial(StepContent stepContent); public void setEHLComboBox(Vector EHLVector); public void setStepComboBox(Vector stepVector); * I_StepContent: an interface for StepContentFrame public void setPredecessorComboBox(Object[] oa); public void setDepInfo(String selectedDepStep); public void setCompInfo(ComponentType ct); public void setListModel(Vector stepVector); public void setItemList(Object[] objs) public StepContent getStepContent(); public void setSkillComboBox(Vector v); public void setStakeHolders(); public void setEHLInfo(EHL ehl); public void setReadOnly(); public interface I_StepContent import java.util.*; package Cases;

public interface L_Trace{
public String checkSelection(String selectedItem);
public String convertToThePath(String s);
public String convertToThePath(String s);
public File searchFilePath(String s);
public void searchInputFiles(File aFile, String fileType);
public void searchInputFiles(String thePath);
public void searchPath(String s);
public void setComponentContent(String selectedItem, File f);
public void setHistory(String s);
public void setHistory(String s);
public void setSelectedItem(String currentPath, String selectedItem);
public void setSelectedItem(String currentPath, String selectedItem);

import java.util.*; import java.io.*;

package Cases;

* L_Trace : an interface for TraceFrame

```
// what Visual Cafe can generate, or Visual Cafe may be
                                * index ; index of component content or trace button from TraceFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                 // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          itemScrollPane.getViewport().add(itemList);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (temScrollPane.setBounds(15,70,270,250);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getContentPane().add(itemScrollPane)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 getContentPane().add(cancelButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OKButton.setBounds(64,340,75,24)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              getContentPane().add(OKButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           itemList.setBounds(0,0,267,247);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cancelButton.setText("Cancel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OKButton.setText("OK");
                                                                                                                                                                                                                                                                          public ListDialog(JFrame parent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //{ INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setSize(300,400);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 setModal(true);
                                                                                                                                                                                                                                                                                                                                                super(parent)
                                                                                                                                                                                                      * Buil ListDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         syntax that matches
                                                                                                    int index = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                  when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and initializes
                                                                                                                                                                                                                                                                                                                                                                              * Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     oublic class ListDialog extends com.sun.java.swing.JDialog implements
                                                                                                                                                                                                                                         * ListDialog: Use to list components. It is launched by
                                                                                                                                                                                                                                                                                                                                                                                                                                                * scf: step component frame, one of owner frames
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * psf: project schema frame, one of owner frames
                                                                                                                                                                                                                                                                                                             TraceFrame, and ProjectSchemaFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * tf: trace frame, one of owner frames
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * listModel: model of the itemList
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProjectSchemaFrame psf = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        StepContentFrame scf = null;
                                                                                                      import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TraceFrame tf = null
                                                                                                                                                                                                                                                                          StepContentFrame,
import java.awt.*;
                                import java.util.*;
                                                                 import java.io.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CasesTitle
```

DefaultListModel listModel = new DefaultListModel();

package Cases;

```
* @param title: title of this dialog when project schema frame launchs
                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param index : index of button from trace frame, eg, 0:trace button,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param itemVector: list of components from project schema frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public ListDialog(TraceFrame tf, String title, Vector itemVector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * ProjectSchemaFrame launchs this dialog with its components list
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   listModel.addElement(itemVector.elementAt(i));
                                          listModel.addElement(itemVector.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                      * @param title: title of this dialog when trace frame launchs it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           :component content buton
                                                                                                                                                                                                                                                                                                                                                                                                                  * @param itemVector: list of components from trace frame
                                                                                                                                                                                                                                               * TraceFrame launchs this dialog with its components list
for( int i=0; i<itemVector.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for( int i=0; i<itemVector.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param psf: project schema frame, owner frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.titleLabel.setText(title);
                                                                                                                                                                                                                                                                                                                              * @param tf: trace frame, owner frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.index = index;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this((JFrame)tf);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             setTitle(title);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.tf = tf;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int index)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :=
                                                                            itleLabel.setHorizontalAlignment(com.sun.java.swing.SwingCons
                                                                                                                                                                                                                                                                               itleLabel.setFont(new Font("Dialog", Font.BOLD, 18));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param title: title of this dialog when step content frame launchs it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * @param itemVector: list of components from step content frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public ListDialog(StepContentFrame scf, String title, Vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * StepContentFrame launchs this dialog with its components list
                                                                                                                                                                                                                                            ittleLabel.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cancelButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OKButton.addActionListener(ISymAction);
cancelButton.setBounds(160,340,75,24);
                                                                                                                                                                                                                                                                                                                              titleLabel.setBounds(1,10,298,30);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param scf : step content frame, owner frame
                                                                                                                                                                                                     getContentPane().add(titleLabel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                  //{REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   itemList.setModel(listModel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Set model for the itemList
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.titleLabel.setText(title);
                                                                                                                                                             titleLabel.setText("jlabel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this((JFrame)scf);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.scf = scf;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           setTitle(title);
                                                                                                                      tants.CENTER);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             itemVector)
```

```
setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cancelButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                  com.sun.java.swing.JScrollPane itemScrollPane = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else if (object == cancelButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JButton cancelButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JButton OKButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JLabel titleLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (object == OKButton)
                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JList itemList = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Return selected item(s) to the owner frame
                                                                                                                                                                              boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                // DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JScrollPane();
                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JButton();
                                                                                                                                         // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JLabel();
                                     insets.bottom + size.height);
                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JList();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           event)
                                                                                                                                                                                                                                                                                                             listModel.addElement(((ComponentType)itemVector.elementAt(i)).getCom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // Record the size of the window prior to calling parents
public ListDialog(ProjectSchemaFrame psf, String title, Vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // Adjust size of frame according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.setLocationRelativeTo(this.scf);
                                                                                                                                                                                                                                             for( int i=0; i<itemVector.size(); i++ ){
                                                                                                                                                                                                      this.titleLabel.setText(title);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        super.addNotify();
                                                                                                  this((JFrame)psf);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void addNotify()
                                                                                                                                                                        setTitle(title);
                                                                                                                                         this.psf = psf;
                                                                                                                                                                                                                                                                                                                                                  ponentID());
                                itemVector)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  addNotify.
```

```
void cancelButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                   this.psf.setItemList(this.itemList.getSelectedValues());
 setVisible(false);
                                                                                                                                                                                                                                                 else if( this.psf != null ){
                                   dispose();
                                                                                                                                                                                                                                                                                                                 setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Exit ListDialog
                                                                                                                                                                                                                                                                                                                                                  dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOptionPane.showMessageDialog(this, selectedItem+" does
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         String s = this.tf.convertToThePath(currentComponent);
void OKButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                 String selectedItem = (String)this.itemList.getSelectedValue();
                                                                                                                                                        this.scf.setPredecessorComboBox(this.itemList.getSelectedValues());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       File f = (File)this.tf.searchFilePath(currentComponent);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.tf.setComponentContent(selectedItem, f);
                                                                                                                                                                                                                                                                                                                                                                            String s = this.tf.convertToThePath(selectedItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.tf.setSelectedItem(s, selectedItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                        this.tf.setSelectedItem(s, selectedItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(!currentComponent.equals("")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (String)this.tf.checkSelection(selectedItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String currentComponent =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  not exist!", "Alert Message",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else if( index == 1){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( s!= null ){
                                                                                                                                                                                                                                                                                 else if( this.tf!= null)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(!f.exists()){
                                                                                             if( this.scf != null ){
                                                                                                                                                                                        setVisible(false);
                                                                                                                                                                                                                                                                                                                                              if (index == 0)
                                                                                                                                                                                                                                                                                                                                                                                                          if( s!= null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dispose();
                                                                                                                                                                                                                        dispose();
                                   event)
```

```
the name is Personnel's ID under stakeholder directory
                                                                                                                                                                                                                                                                                                  * Personnel: Create a Personnel object and save it in a file with
                                                                                                                                                                                                                                                                                                                                                                                                 * securityLevel: security level of the person
                                                                                                                                                                                                                                                                                                                                                                                                                                   public class Personnel implements Serializable (
* Personnel Data object which is used to save
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * skill: vector of the person's skills
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        private Vector skill = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        private int security Level = 0;
                                 * under stakeholder directory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * name: name of a person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        private String name = null;
                                                                                                                                import java.io.Serializable;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 private String ID = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * ID: personnel ID
                                                                                                                                                                import java.util. *;
```

```
* This Personnel constructor is used to create a Personnel object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int security Level, String email, String telephone,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public Personnel(String ID, String name, Vector skill,
                                                                                                                                                                                                        * telephone: telephone number of the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * minorJobs: minor job list for this person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * majorJobs : major job list for this person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       private Vector majorJobs = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           private Vector minorJobs = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            String fax, String address){
* email : e-mail address of the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * address : address of the person
                                                                                                                                                                                                                                                                                                                                                                                                            * fax : fax number of the person
                                                                                                                                                                                                                                                                                        private String telephone = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               private String address = null;
                                                                                  private String email = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           private String fax = null;
```

package Cases;

```
* Set name for this personnel object
                                                                                         this.securityLevel = securityLevel;
                                                                                                                                                                                                                                                                                                                                                                                                                              * Set ID for this personnel object
                                                                                                                                                                                                                                                                                   * Empty Personnel constructor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @return ID: this person's ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * ID of this personnel object
                                                                                                                                         this.telephone = telephone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void setID(String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @param s : string of ID
                                                                                                                                                                this.fax = fax;
this.address = address;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public String getID(){ .
return this.ID;
                                           this.name = name;
this.skill = skill;
                                                                                                                 this.email = email;
                                                                                                                                                                                                                                                                                                                              public Personnel(){
                   this.ID = ID;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.ID = s;
this();
```

```
* @param s: this person's name
*/
public void setName(String s){
    this.name = s;
    **

* The person's name

* "areturn name: the name of person
*/
public String getName(){
    return this.name;
}

* Set skills for the person

* @param v: list of person's skill
*/
public void setSkill(Vector v){
    this.skill = v;
}

* Skills of the person

* @return skill: a vector of skills
*/
public Vector getSkill(){
    return this.skill;
}

* We set security level for the person

* Set security level for the person

* Set security level for the person
```

```
* @return email: email address of the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @param s : a string of telephone number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @param s : email address of the person
                                                                                                                                                                                                                                                                            * @return securityLevel : security level
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Set telephone number of the person
                                                      public void setSecurityLevel(int i){
  this.securityLevel = i;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Email address of the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public void setEmail(String s){
                                                                                                                                                                                                               * Security level of the person
                                                                                                                                                                                                                                                                                                                                      public int getSecurityLevel(){
* @param i : security level
                                                                                                                                                                                                                                                                                                                                                                       return this.securityLevel;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Set email for the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public String getEmail(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return this.email;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.email = s;
```

```
* @return telephone: a string of telephone number
                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param s : a string of fax number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @return s: a string of fax number
                                                                                                                                         * Telephone number of the person
public void setTelephone(String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @param s : a string of address
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public void setAddress(String s){
                                                                                                                                                                                                                                                                                                                                                                                                  * Set fax number for the person
                                                                                                                                                                                                                                                       public String getTelephone(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Set address for the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Fax number of the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public void setFax(String s){
                                                                                                                                                                                                                                                                                     return this.telephone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public String getFax(){
                              this.telephone = s;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     return this.fax;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this. fax = s;
```

```
* Implement CasesTitle where stores all global variables of Cases package
                                System.out.println(i+": MAJORJOB = "+v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public class PersonnelFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * PersonnelFrame: to create, edit, and view personnel object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       import com.symantec.itools.swing.borders.EtchedBorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @return majorJobs : a vector of major jobs
                                                                                                                                                                           * The list of major jobs for the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    import symantec.itools.awt.MultiList;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Implements interface I_Personnel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mplements CasesTitle, I_Personnel
for( int i=0; i<v.size(); i++){
                                                                                                                                                                                                                                                                                                                 public Vector getMajorJobs(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       import com.sun.java.swing. *;
                                                                                                                                                                                                                                                                                                                                                  return this.majorJobs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 import java.util. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mport java.io.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               System.out.println(i+": MINORJOB = "+v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * @return minorJobs : a vector of minor jobs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Set the list of major jobs for the person
                                                                                                                                                                                                                                                                                                                                                                                                                      * Set the list of minor jobs for the person
                                                                                                                                                                                                              * @return address: a string of address
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * The list of minor jobs for the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param v: a vector of major jobs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void setMinorJobs(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void setMajorJobs(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param v : a list of minor jobs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for( int i=0; i<v.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public Vector getMinorJobs(){
                                                                                                                                                                                                                                                                                public String getAddress(){
                                                                                                                                     * Address of the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  return this.minorJobs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.minorJobs = v;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.majorJobs = v;
                                                                                                                                                                                                                                                                                                                   return this.address;
    this.address = s;
```

```
JLabel8.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JLabel7.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                               JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JLabel5.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JLabel6.setHorizontalAlignment(com.sun.java.swing.SwingConsta
// parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Label7.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Label6.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JLabel5.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                            JLabel2.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JLabel5.setBounds(45,180,110,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JLabel5.setText("E-mail Address");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JLabel6.setBounds(45,250,110,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Label7.setBounds(45,285,110,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JLabel2.setBounds(45,40,110,24);
                                                                                                                       gctContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JLabel6.setText("Fax Number");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   getContentPane().add(JLabel7);
                                                                                                                                                                                                                                                                                                                                                                                                   getContentPane().add(JLabel2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                getContentPane().add(JLabel5);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 getContentPane().add(JLabel6);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JLabel7.setText("Address");
                                                                              setTitle("Personnel Data");
                                        // INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                           JLabel2.setText("ID");
                                                                                                                                                                                                setSize(500,540);
                                                                                                                                                          setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nts.RIGHT);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nts.RIGHT)
                                                                                                                                                                                                                                                                                                                     nts.RIGHT);
                                                                                                                                                                                                                                    * view: a flag to define the purpose of using this frame, eg. view or edit
                                                                                                                                                                                                                                                                                                                                                                                                                                    * edit: a flag to define the purpose of using this frame, eg. view or edit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               String[] listHeadings = {"Job Name", "Real Start Time", "Estimated
                                   * selectedSkill: contains all selected skill from SkillTableFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Build PersonnelFrame and CasesFrrame launch this to create
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * listHeadings: the 3 column headings of job multi list
                                                                                                                  public Vector selectedSkill = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public PersonnelFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Personnel personnel = null;
                                                                                                                                                                                                                                                                                                                  boolean view = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     boolean edit = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       personnel object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Duration" \};
```

JLabel8.setText("Name");
getContentPane().add(JLabel8);
JLabel8.setForeground(java.awt.Color.black);
JLabel8.setBounds(45,75,110,24);

JLabel9.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel9.setText("Security Level");
getContentPane().add(JLabel9);
JLabel9.setForeground(java.awt.Color.black);
JLabel9.setBounds(45,145,110,24);

JLabel10.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel10.setText("Telephone Number");
getContentPane().add(JLabel10);
JLabel10.setForeground(java.awt.Color.black);
JLabel10.setBounds(45,215,110,24);

JLabel11.setHorizontalTextPosition(com.sun.java.swing.SwingConstants.CENTER);

JLabel11.setHorizontalAlignment(com.sun.java.swing.SwingConst ants.CENTER);

JLabel I I.setText("Personnel Data");
getContentPane().add(JLabel I I);
JLabel I I.setForeground(java.awt.Color.black);
JLabel I I.setFont(new Font("Dialog", Font.BOLD, 20));
JLabel I I.setBounds(0,2,500,40);
getContentPane().add(IDTextField);
IDTextField.setBackground(java.awt.Color.white);
IDTextField.setForeground(java.awt.Color.black);
IDTextField.setBounds(155,40,300,24);
getContentPane().add(nameTextField);
nameTextField.setBackground(java.awt.Color.white);
nameTextField.setForeground(java.awt.Color.white);
nameTextField.setForeground(java.awt.Color.black);
nameTextField.setBounds(155,75,300,24);

telephoneTextField.setBackground(java.awt.Color.white); telephoneTextField.setForeground(java.awt.Color.black); addressTextField.setBackground(java.awt.Color.white); address TextField. setForeground (java. awt. Color. black);emailTextField.setBackground(java.awt.Color.white); emailTextField.setForeground(java.awt.Color.black); axTextField.setBackground(java.awt.Color.white); faxTextField.setForeground(java.awt.Color.black); securityComboBox.setBounds(155,145,300,24); telephoneTextField.setBounds(155,215,300,24); addressTextField.setBounds(155,285,300,24); skillComboBox.setBounds(155,110,300,24); emailTextField.setBounds(155,180,300,24); getContentPane().add(telephoneTextField); getContentPane().add(securityComboBox) faxTextField.setBounds(155,250,300,24); skillButton.setActionCommand("Skill"); getContentPane().add(addressTextField); exitButton.setActionCommand("Exit"); skillButton.setBounds(55,110,100,24); getContentPane().add(skillComboBox); getContentPane().add(emailTextField); getContentPane().add(jobsScrollPane); getContentPane().add(faxTextField); getContentPane().add(clearButton); getContentPane().add(saveButton); getContentPane().add(skillButton); getContentPane().add(exitButton); obsScrollPane.setBounds(0,0,0,0); clearButton.setBounds(0,0,0,0); saveButton.setBounds(0,0,0,0); getContentPane().add(JLabel1); getContentPane().add(JLabel3); exitButton.setBounds(0,0,0,0); skillButton.setText("Skill"); exitButton.setText("Exit"); ILabel1.setBounds(0,0,0,0);

```
ObjectInputStream oi = new ObjectInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                            * @param request: purpose of using this frame, eg. View or Edit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( oi != null ){
    personnel = (Personnel)oi.readObject();
                                                                                                                                                                                                                                                                                                                       * CasesFrame launch this to edit and view personnel object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         System.out.println("IOException: "+io);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public PersonnelFrame(String selectedFile, String request){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              System.out.println("ClassNotFoundException: "+c);
                                                                 saveButton.setActionCommand("Save");
                                                                                                                                                                         exitButton.setBounds(380,330,73,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          File aFile = new File(selectedFile);
clearButton.setBounds(24,330,73,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FileInputStream fileInput = new
                                                                                                                                       saveButton.setBounds(96,330,73,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 catch( ClassNotFoundException c ){
                                                                                                     getContentPane().add(saveButton);
                                                                                                                                                                                                                                                                                                                                                                                             * @param selectedFile: a selected file name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( request.equals("View") ){
                                    saveButton.setText("Save");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       catch( IOException io ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( aFile.exists() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               oi.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FileInputStream(aFile);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fileInput);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    minorRadioButton.addItemListener(ISymItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        majorRadioButton.addItemListener(1SymItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clearButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             saveButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         skillButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            exitButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         clearButton.setActionCommand("Delete");
                                                                                                                                                                                                                                                   getContentPane().add(minorRadioButton);
                                                                                                                                                                                                                                                                                                                         getContentPane().add(majorRadioButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SymItem ISymItem = new SymItem();
                                                                                                                                                                                                                                                                                            minorRadioButton.setBounds(0,0,0,0);
                                                                                                                                                                                                                                                                                                                                                           majorRadioButton.setBounds(0,0,0,0);
                                                                                                                                                                                  getContentPane().add(onHandsPanel);
                                        getContentPane().add(jobScrollPane);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getContentPane().add(clearButton);
                                                                                                                                                                                                                 onHandsPanel.setBounds(0,0,0,0);
                                                                                                                                                                                                                                                                                                                                                                                                 //$$ etchedBorder1.move(0,541);
                                                                          jobScrollPane.setBounds(0,0,0,0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for( int i=0; i<SECURITY_LEVEL; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         clearButton.setText("Clear");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //{REGISTER_LISTENERS
                                                                                                                onHandsPanel.setLayout(new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //Set security level combobox from 0..5
      JLabel3.setBounds(0,0,0,0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  securityComboBox.addItem(i+"");
                                                                                                                                                FlowLayout(FlowLayout.CENTER,5,5));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //{INIT_MENUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setSize(500,380);
```

```
// Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (new PersonnelFrame()).setVisible(true);
                                 else if( request.equals("Edit") ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                 public PersonnelFrame(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void setVisible(boolean b)
                                                                                                                                                                           setInitial(personnel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (frameSizeAdjusted)
                                                                                                                                          if( personnel != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            return;
                                                                                                                                                                                                                                                                                                                                                                                                                     setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void addNotify()
                                                                         edit = true;
                                                                                                                                                                                                                                                                                                                                                                                      this();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JLabel3.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     jobMultiList.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      jobScrollPane.getViewport().add(jobMultiList);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Label3.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                     minorRadioButton.setBounds(170,3,130,24)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            majorRadioButton.setBounds(20,3,130,24);
                                                                                                                                                                                                                                                                           onHandsPanel.setBounds(155,320,300,30);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  obScrollPane.setBounds(45,355,410,130);
                                                                                                                                                                                                                                                                                                               minorRadioButton.setText("Minor Jobs");
                                                                                                                                                                                                                                                                                                                                                                                                                                                    majorRadioButton.setText("Major Jobs");
                                                                                                                                                                       onHandsPanel.setBorder(etchedBorder1);
                                                                                                                                                                                                                                                                                                                                                                                    onHandsPanel.add(minorRadioButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        onHandsPanel.add(majorRadioButton);
                                                                                                                                                                                                                                          getContentPane().add(onHandsPanel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          exitButton.setBounds(384,495,73,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               getContentPane().add(jobScrollPane);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       obMultiList.setBounds(0,0,407,127);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               jobMultiList.setNumberOfCols(3);
                                                                                                                                                                                                                                                                                                                                                  minorRadioButton.setSelected(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             majorRadioButton.setSelected(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JLabel3.setBounds(45,320,110,27);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JLabel3.setText("On-hand Jobs");
                                                                  clearButton.setBounds(0,0,0,0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getContentPane().add(JLabel3);
                                                                                                    saveButton.setBounds(0,0,0,0);
                                                                                                                                                                                                             onHandsPanel.setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                jobMultiList.setHeadings(listHeadings);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       catch(Exception e){System.out.println(e);}
                                 setSize(500,540);
view = true;
```

setSize(insets.left + insets.right + size.width, insets.top + // Adjust size of frame according to the insets and menu com.sun.java.swing.JMenuBar menuBar = //symantec.itools.awt.MultiList jobMultiList = new com.sun.java.swing.JLabel JLabel10 = new com.sun.java.swing.JLabel JLabel5 = new com.sun.java.swing.JLabel JLabel8 = new com.sun.java.swing.JLabel JLabel9 = new com.sun.java.swing.JLabel JLabel2 = ncw com.sun.java.swing.JLabel JLabel6 = new com.sun.java.swing.JLabel JLabel7 = new MultiList jobMultiList = new MultiList(); menuBarHeight = boolean frameSizeAdjusted = false; frameSizeAdjusted = true; Insets insets = getInsets(); int menuBarHeight = 0; //{ DECLARE_CONTROLS if (menuBar != null) // Used by addNotify

com.sun.java.swing.JComboBox securityComboBox = new com.sun.java.swing.JTextField telephoneTextField = new com.sun.java.swing.JComboBox skillComboBox = new com.sun.java.swing.JTextField addressTextField = new com.sun.java.swing.JScrollPane jobsScrollPane = new com.sun.java.swing.JScrollPane jobScrollPane = new com.sun.java.swing.JTextField nameTextField = new com.sun.java.swing.JTextField emailTextField = new com.sun.java.swing.JTextField faxTextField = new com.sun.java.swing.JTextField IDTextField = new com.sun.java.swing.JPanel onHandsPanel = new com.sun.java.swing.JButton clearButton = new com.sun.java.swing.JButton skillButton = new com.sun.java.swing.JButton saveButton = new com.sun.java.swing.JButton exitButton = new com.sun.java.swing.JLabel JLabel11 = new com.sun.java.swing.JLabel JLabel1 = new com.sun.java.swing.JLabel JLabel3 = new com.sun.java.swing.JComboBox(); com.sun.java.swing.JComboBox() com.sun.java.swing.JScrollPane(); com.sun.java.swing.JScrollPane() com.sun.java.swing.JTextField(); com.sun.java.swing.JTextField(); com.sun.java.swing.JTextField(); com.sun.java.swing.JTextField() com.sun.java.swing.JTextField() com.sun.java.swing.JTextField() com.sun.java.swing.JButton(); com.sun.java.swing.JButton(); com.sun.java.swing.JButton() com.sun.java.swing.JButton() com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JPanel() insets.bottom + size.height + menuBarHeight) menuBar.getPreferredSize().height; symantec.itools.awt.MultiList(); getRootPane().getJMenuBar(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); bar

```
ObjectOutputStream oo = new ObjectOutputStream(fileOutput);
  clearButton_actionPerformed(event);
                                                                              saveButton_actionPerformed(event);
                                                                                                                                                                exitButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          void saveButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FileOutputStream(STAKEHOLDER+"\\"+IDTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    skillButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Personnel personnel = (Personnel)getPersonnelData(); if( personnel != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Get a personnel object and save it under stakeholder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (new SkillTableFrame(this)).setVisible(true);
                                           else if (object == saveButton)
                                                                                                                       else if (object == exitButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FileOutputStream fileOutput = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oo.writeObject(personnel);
                                                                                                                                                                                                                                                                                                                                                               * Launch SkillTableFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     catch(IOException io){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ){ | If( 00 != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                           public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       oo.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     oo.close();
                                                                                                                                                           com.symantec.itools.swing.borders.EtchedBorder etchedBorder1 =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            skillButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Add all selected skills from SkillTableFrame to skillComboBox
com.sun.java.swing.JRadioButton minorRadioButton = new
                                                                            com.sun.java.swing.JRadioButton majorRadioButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.skillComboBox.addItem("ID: Name: Level");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.skillComboBox.addItem(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else if (object == clearButton)
                                                                                                                                                                                                   new com.symantec.itools.swing.borders.EtchedBorder();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.selectedSkill.addElement(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (object == skillButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void setSkillComboBox(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.skillComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for( int i=0; i<v.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param v : a selected skill vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.selectedSkill = new Vector();
                                                                                                                       com.sun.java.swing.JRadioButton();
                                           com.sun.java.swing.JRadioButton();
                                                                                                                                                                                                                                                                                                                         //{ DECLARE_MENUS
//} }
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( v.size() > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      event)
```

```
JOptionPane.showMessageDialog(this, "You did not complete all
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the fields", "Error Message", JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                 Integer.parseInt((String)securityComboBox.getSelectedItem());
                                                                                                                                                                                                                                                                                                                                                                                                                                     String address = addressTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                  String tel = telephoneTextField.getText();
                                                                                                                                                                                                                                                                                                                                   String email = emailTextField.getText();
                                                                                                                                                                                                                                    String name = nameTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     personnel.setSecurityLevel(security);
                                                                                                                                                                                                                                                                                                                                                                                                  String fax = faxTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      personnel.setSkill(selectedSkill);
                                                                                                                                                                                                   String ID = IDTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      personnel.setAddress(address);
                                                                                                public Personnel getPersonnelData(){
                                                                                                                                      Personnel personnel = néw Personnel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        personnel.setTelephone(tel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  personnel.setName(name);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       personnel.setEmail(email);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   selectedSkill.size() == 0 ||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       personnel.setFax(fax);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  personnel.setID(ID);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   address.equals("")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  name.equals("") ||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     email.equals("") |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fax.equals("") ||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( ID.equals("") ||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tel.equals("") ||
                                   * @return personnel object
                                                                                                                                                                                                                                                                    int security = '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      return null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else{
                                                                                                                                                                                                                                                                                                                                                                void clearButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void exitButton_actionPerformed(java.awt.event.ActionEvent
                                 unsuccessful", "Error Message", JOptionPane.ERROR_MESSAGE);
JOptionPane.showMessageDialog(this, "Sorry, saving is
                                                                                                                                                                                                                                                                                             * Refresh all the textfields and combo boxes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 securityComboBox.setSelectedIndex(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Create and return a personnel object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 skillComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                telephoneTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               addressTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                emailTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nameTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 faxTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IDTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Exit PersonnelFrame
                                                                                              setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                               //clear all fields
                                                                                                                                  dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dispose();
```

```
minorRadioButton_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        System.out.println("stepNamme = "+sc.getStepName());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          jobMultiList.addTextCell(j, 1, sc.getRealStartTime());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                iobMultiList.addTextCell(j, 2, ""+sc.getDuration());
                                                                                                                                                                         else if (object == majorRadioButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 jobMultiList.addTextCell(j, 0, sc.getStepName());
  Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * View major jobs of selected personnel object to the list
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * View minor jobs of selected personnel object to the list
                                           if (object == minorRadioButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            StepContent sc = (StepContent)v.elementAt(j)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( event.getStateChange() == event.SELECTED ){
                                                                                                                             minorRadioButton_itemStateChanged(event);
                                                                                                                                                                                                                                                        majorRadioButton_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          v = (Vector)personnel.getMinorJobs();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 majorRadioButton.setSelected(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for( int j=0; j<v.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( personnel != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             jobMultiList.clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public void itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                securityComboBox.setSelectedItem(""+personnel.getSecurityLevel());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 telephoneTextField.setText(personnel.getTelephone());
                                                                                                                                                                                                               * Set initial frame when it is launched to view and edit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          addressTextField.setText(personnel.getAddress());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nameTextField.setText(personnel.getName());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   emailTextField.setText(personnel.getEmail());
                                                                                                                                                                                                                                                                                                                                                                                     public void setInitial(Personnel personnel){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      faxTextField.setText(personnel.getFax());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           setSkillComboBox(personnel.getSkill())
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IDTextField.sctText(personnel.getID());
                                                                                                                                                                                                                                                                                                * @param personnel : a personnel object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     telephone TextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           securityComboBox.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              addressTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nameTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          emailTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          faxTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     skillButton.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                      if( personnel != null ){
catch(Exception e){}
                                           return personnel;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( view ){
```

```
public void
majorRadioButton_itemStateChanged(java.awt.event.ItemEvent event)

if( event.getStateChange() == event.SELECTED ) {
    minorRadioButton.setSelected(false);
    jobMultiList.clear();
    Vector v = new Vector();
    if( personnel != null ) {
        v = (Vector)personnel.getMajorJobs();
        for( int j=0; j<v.size(); j++) {
            StepContent sc = (StepContent)v.elementAt(j);
            System.out.println("stepNamme = "+sc.getStepName());
            jobMultiList.addTextCell(j, 0, sc.getStepName());
            jobMultiList.addTextCell(j, 1, sc.getRealStartTime());
            }
        }
    }
}
</pre>
```

import java.awt.event.*; import com.sun.java.swing.*; import com.sun.java.swing.event.*;

import java.io.*; import java.util.*; import java.awt.*;

package Cases;

```
* selectedCompIndex : to make sure that getting the correct component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * selectedEHLIndex : to make sure that getting the correct EHL object
                                    * selectedStepIndex : to make sure that getting the correct step type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * selectedDepenStepIndex: to make sure that getting the correct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public DefaultListModel listModel = new DefaultListModel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * listModel: monitor all step types in EHL panel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * pathName : the path of the current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public ProjectSchemaFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public int selectedDepenStepIndex;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Build ProjectSchemaFrame
                                                                                                                                                                                                                                                                                                                                                                                                                 public int selectedCompIndex;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public int selectedEHLIndex;
                                                                                                                                                             public int selectedStepIndex;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public String pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        dependency object
                                                                                                                                                                                                                                                                                                                                  type object
                                                                                 object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * EHL Hashtable: with the keys and the objects are EHL IDs and EHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * depenHashtable: with the keys and the objects are dependency IDs
                                                                                                                                                                                                                                                                                                                             * stepHashtable: with the keys and the objects are step type IDs and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * compHashtable: with the keys and the objects are component type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * testIndex: to keep track the secondary input of each dependency
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public Hashtable compHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public Hashtable depenHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public Hashtable EHL Hashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                      public Hashtable stepHashtable = new Hashtable();
public Vector compVector = new Vector();
                                                                                                                                                                                                    public Vector EHLVector = new Vector();
                                                                                                                      * EHLVector: contains all EHL objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IDs and component type objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public int testIndex = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       object to be set correctly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and dependency objects */
                                                                                                                                                                                                                                                                                                                                                                          step type objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       objects
```

nts.RIGHT); // what Visual Cafe can generate, or Visual Cafe may be // components to the visual environment. It instantiates configManagTabbedPane.setForeground(java.awt.Color.black); // This code is automatically generated by Visual Cafe // the components. To modify the code, only use code configManagTabbedPane.setBounds(0,0,580,360); // parse your Java file into its visual environment mainPanel.setLayout(new GridLayout(1,1,0,0)); configManagTabbedPane.add(stepTypePanel); nainPanel.add(configManagTabbedPane); stepTypePanel.setBounds(2,27,575,330); mainPanel.setBounds(10,0,580,360); getContentPane().setLayout(null); getContentPane().add(mainPanel) stepTypePanel.setLayout(null); setTitle("Project Schema"); //{ INIT CONTROLS setSize(600,450); setVisible(false); syntax that matches when you add and initializes unable to back

JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta
RIGHT);
 JLabel1.setText("Step Type ID");
 stepTypePanel.add(JLabel1);
 JLabel1.setForeground(java.awt.Color.black);

JLabel1.setBounds(62,70,130,22);
JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConsta

JLabel2.setText("Step Type Name"); stepTypePanel.add(JLabel2);

JLabel2.setForeground(java.awt.Color.black); JLabel2.setBounds(62,110,130,22);

JLabel3.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);
 JLabel3.setText("Step Type Description");

stepTypePanel.add(JLabel3);

Label3.setForeground(java.awt.Color.black);
Label3.setBounds(62,190,130,22);

JLabel4.setHorizontalAlignment(com.sun.java.swing.SwingConsta.RIGHT);

ILabel4.setText("Existing Step Types"); stepTypePanel.add(JLabel4); ILabel4.setForeground(java.awt.Color.black); ILabel4.setBounds(62,150,130,22); stepAddButton.setText("Add"); stepAddButton.setActionCommand("jbutton"); stepAddButton.setBounds(12,297,75,22); stepDeleteButton.setText("Delete"); stepDeleteButton.setActionCommand("jbutton"); stepDeleteButton.setActionCommand("jbutton"); stepDeleteButton.setText("Cleat"); stepDeleteButton.setText("Clear");

step 1) for anomaca, are proceed and the step of the s

stepEditButton.setText("Edit"); stepEditButton.setActionCommand("jbutton"); stepTypePanel.add(stepEditButton); stepEditButton.setBounds(90,297,75,22); stepTypePanel.add(stepIDTextField);

stepIDTextField.setBounds(195,70,300,22); stepTypePanel.add(stepNameTextField); stepNameTextField.setBounds(195,110,300,22); stepTypePanel.add(existedStepComboBox);

existedStepComboBox.setBounds(195,150,300,22); stepDescriptionTextArea.setLineWrap(true); stepDescriptionTextArea.setWrapStyleWord(true); stepTypePanel.add(stepDescriptionTextArea); stepDescriptionTextArea.setBounds(195,190,300,80); stepSaveButton.setText("Save"); stepSaveButton.setActionCommand("Save"); stepTypePanel.add(stepSaveButton); stepTypePanel.add(stepSaveButton); stepSaveButton.setBounds(492,297,75,22);

JLabel16.setHorizontalAlignment(com.sun.java.swing.SwingConstits.RIGHT);

JLabel16.setText("Project Label:"); stepTypePanel.add(JLabel16); JLabel16.setForeground(java.awt.Color.black); JLabel16.setFont(new Font("Dialog", Font.BOLD, 18)); JLabel16.setBounds(2,6,280,24);

JLabel16.setFont(new Font("Dialog", Font.BOLD, 18));
JLabel16.setBounds(2,6,280,24);
stepLabel.setText("Label");
stepTypePanel.add(stepLabel);
stepLabel.setForeground(java.awt.Color.black);
stepLabel.setFort(new Font("Dialog", Font.BOLD, 18));
stepLabel.setBounds(292,6,280,24);
componentTypePanel.setLayout(null);
configManagTabbedPane.add(componentTypePanel);

componentTypePanel.setVisible(false);

JLabel5.setHorizontalAlignment(com.sun.java.swing.SwingConsta

nts.RIGHT)

componentTypePanel.setBounds(2,27,575,330);

componentTypePanel.setBackground(new

java.awt.Color(204,204,204));

JLabel5.setText("Component Type ID");
componentTypePanel.add(JLabel5);
JLabel5.setForeground(java.awt.Color.black);
JLabel5.setBounds(75,70,145,22);

compEditButton.setBounds(90,297,75,22);

JLabel6.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel6.setText("Component Type Name"); componentTypePanel.add(JLabel6); JLabel6.setForeground(java.awt.Color.black); JLabel6.setBounds(75,110,144,22);

JLabel7.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel7.setText("Component Type Description");
componentTypePanel.add(JLabel7);
JLabel7.setForeground(java.awt.Color.black);
JLabel7.setBounds(50,190,170,22);

JLabel8.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

compDeleteButton.setActionCommand("jbutton"); compClearButton.setActionCommand("jbutton"); compAddButton.setActionCommand("jbutton"); compEditButton.setActionCommand("¡button"); JLabel8.setText("Existing Component Types"); componentTypePanel.add(compDeleteButton); compDeleteButton.setBounds(168,297,75,22); JLabel8.setForeground(java.awt.Color.black); componentTypePanel.add(compClearButton); componentTypePanel.add(compAddButton); componentTypePanel.add(compEditButton); compClearButton.setBounds(246,297,75,22) compAddButton.setBounds(12,297,75,22); compDeleteButton.setText("Delete"); compClearButton.setText("Clear"); componentTypePanel.add(JLabel8) ILabel8.setBounds(50,150,170,22); compAddButton.setText("Add"); compEditButton.setText("Edit");

componentTypePanel.add(compIDTextField);
compIDTextField.setBounds(225,70,300,22);
componentTypePanel.add(compNameTextField);
componentTypePanel.add(compNameTextField);
componentTypePanel.add(existedCompComboBox);
existedCompComboBox.setBounds(225,150,300,22);
compDescriptionTextArea.setLineWrap(true);
compDescriptionTextArea.setWrapStyleWord(true);
compDescriptionTextArea.setBounds(225,190,300,80);
compDescriptionTextArea.setBounds(225,190,300,80);
compSaveButton.setText("Save");
compSaveButton.setActionCommand("Save");
compSaveButton.setActionCommand("Save");
compSaveButton.setBounds(492,297,75,22);

JLabel17.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel17.setText("Project Label:");
componentTypePanel.add(JLabel17);
JLabel17.setForeground(java.awt.Color.black);
JLabel17.setFort(new Font("Dialog", Font.BOLD, 18));
JLabel17.setBounds(0,6,280,24);
compLabel.setText("Label");
compLabel.setForeground(java.awt.Color.black);
compLabel.setFort(new Font("Dialog", Font.BOLD, 18));
compLabel.setBounds(294,6,280,24);
EHLPanel.setBounds(294,6,280,24);
EHLPanel.setBounds(2,27,575,330);
EHLPanel.setBounds(2,27,575,330);
EHLPanel.setVisible(false);

JLabel13.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel13.setText("Evolution Process Name"); EHLPanel.add(JLabel13);

ILabel13.setForeground(java.awt.Color.black);
ILabel13.setBounds(60,70,150,22);

JLabel14.setHorizontalAlignment(com.sun.java.swing.SwingConst ants.RIGHT);

JLabel14.setText("Evolution Process");

3HLPanel.add(JLabel14);

JLabel14.setForeground(java.awt.Color.black);

Label14.setBounds(60,210,150,22);

EHLAddButton.setText("Add");

EHLAddButton.setActionCommand("jbutton");

EHLPanel.add(EHLAddButton);

EHLAddButton.setBounds(10,297,75,22);

EHLDeleteButton.setText("Delete");

EHLDeleteButton.setActionCommand("jbutton");

EHL.Panel.add(EHLDeleteButton);

EHLDeleteButton.setBounds(166,297,75,22);

EHLClearButton.setText("Clear");

EHLClearButton.setActionCommand("jbutton");

EHLPanel.add(EHLClearButton);

EHLClearButton.setBounds(244,297,75,22);

EHLEditButton.setText("Edit");

EHLEditButton.setActionCommand("jbutton");

EHLPanel.add(EHLEditButton);

EHLEditButton.setBounds(88,297,75,22);

EHLPanel.add(EHLNameTextField);

EHLNameTextField.setBounds(215,70,300,22);

EHLPathTextField.setDoubleBuffered(true);

EHLPathTextField.setEditable(false);

EHLPanel.add(EHLPathTextField);

EHLPathTextField.setBackground(java.awt.Color.white);

EHLPathTextField.setForeground(java.awt.Color.black);

EHLPathTextField.setBounds(215,210,300,22);

EHLDoneButton.setText("Done");

EHLDoneButton.setActionCommand("Done");

EHLPanel.add(EHLDoneButton);

EHLDoneButton.setBounds(493,297,75,22);

J. J. Labell 2. set Text ("Primary Input Component Type"); depenOKButton.setBounds(390,290,75,22); JLabel10.setBounds(30,150,240,22); ants.RIGHT); ants.RIGHT) nts.RIGHT) JLabel20.setHorizontalAlignment(com.sun.java.swing.SwingConst J.abel15.setHorizontalAlignment(com.sun.java.swing.SwingConst !Label20.setNextFocusableComponent(compAddButton); label.setHorizontalAlignment(com.sun.java.swing.SwingConstants stepTypesScrollPane.getViewport().add(stepTypesList); projectLabel.setFont(new Font("Dialog", Font.BOLD, existedEHLComboBox.setBounds(215,250,300,22) label.setFont(new Font("Dialog", Font.BOLD, 18)); projectLabel.setForeground(java.awt.Color.black); stepTypesScrollPane.setBounds(215,110,300,80); JLabel15.setText("Existing Evolution Process"); JLabel15.setForeground(java.awt.Color.black); Label20.setForeground(java.awt.Color.black); abel.setForeground(java.awt.Color.black); EHLPanel.add(existedEHLComboBox); projectLabel.setBounds(294,6,280,24); stepTypesScrollPane.setOpaque(true); stepTypesList.setBounds(0,0,297,77); EHLPanel.add(stepTypesScrollPane); Label20.setBounds(60,110,150,22); JLabel15.setBounds(60,250,150,22); dependencyPanel.setLayout(null); ILabel20.setText("Step Types"); label.setText("Project Label:"); projectLabel.setText("Label"); label.setBounds(2,6,280,24); EHLPanel.add(projectLabel); EHLPanel.add(JLabel15); EHLPanel.add(JLabel20); EHLPanel.add(label); ants.RIGHT); 18);

configManagTabbedPane.add(dependencyPanel); dependencyPanel.setBounds(2,27,575,330) dependencyPanel.setVisible(false); JLabel9.setHorizontalAlignment(com.sun.java.swing.SwingConsta

dependencyPanel.add(JLabel9); JLabel9.setText("Step Types");

JLabel9.setForeground(java.awt.Color.black);

ILabel9.setBounds(30,110,240,22);

JLabel10.setHorizontalAlignment(com.sun.java.swing.SwingConst

ILabel10. set Foreground (java. awt. Color. black);Label10.setText("Output Component Type"); dependencyPanel.add(JLabel10);

JLabel12.setHorizontalAlignment(com.sun.java.swing.SwingConst

JLabel12.setForeground(java.awt.Color.black); JLabel12.setBounds(30,190,240,22); dependencyPanel.add(JLabel12); depenOKButton.setText("OK");

depenOKButton.setActionCommand("jbutton"); dependencyPanel.add(depenOKButton)

depenCancelButton.setActionCommand("jbutton"); depenCancelButton.setText("Cancel");

depenCancelButton.setBounds(470,290,75,22); depenSecondaryTextField.setEditable(false); dependencyPanel.add(depenCancelButton)

dependencyPanel.add(depenSecondaryTextField);

depenSecondaryTextField.setBackground(java.awt.Color.white); depenSecondaryTextField.setBounds(275,230,270,22);

```
configManagTabbedPane.setSelectedComponent(stepTypePanel);
                                                                                                                                                                                                                                                                                                                                                              secondaryButton.setActionCommand("Secondary Input
                                                                                                                                                                                                                                                                    secondaryButton.setText("Secondary Input Component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  configManagTabbedPane.setTitleAt(0,"Step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               configManagTabbedPane.setTitleAt(2,"Evolution Process");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           configManagTabbedPane.setTitleAt(1,"Component Type");
                                                                                                                                                                                                                          depenEHLComboBox.setBounds(275,70,270,22);
                                                                                            ILabel19.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      configManagTabbedPane.setTitleAt(3,"Dependency");
                                                                                                                                                                                   dependencyPanel.add(depenEHLComboBox);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      configManagTabbedPane.setSelectedIndex(0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                catch(ArrayIndexOutOfBoundsException e)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            secondaryButton.setBounds(30,230,240,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             doneButton.setActionCommand("OK");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 doneButton.setBounds(262,390,75,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                             dependencyPanel.add(secondaryButton);
     Label19.setText("Evolution Process");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().add(doneButton)
                                                                                                                                      JLabel19.setBounds(30,70,240,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   doneButton.setText("Finish");
                                                  dependencyPanel.add(JLabel19);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                System.out.println(e);
                                                                                                                                                                                                                                                                                                                                                                                                        Component Type(s)");
                                                                                                                                                                                                                                                                                                                 Type(s)");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JLabel18.setHorizontalAlignment(com.sun.java.swing.SwingConst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JLabel19.setHorizontalTextPosition(com.sun.java.swing.SwingCo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Label18.setFont(new Font("Dialog", Font.BOLD, 18));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       depLabel.setFont(new Font("Dialog", Font.BOLD, 18))
                                                                                                                                                                                                                                                                  depenOutputTextField.setFont(new Font("SansSerif",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     depenPrimaryTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            depenPrimaryTextField.setForeground(java.awt.Color.black);
                                                                                                                                 depenOutputTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         depenPrimaryTextField.setBounds(275,190,270,22);
                                                                                                                                                                                                                     depenOutputTextField.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                      depenOutputTextField.setBounds(275,150,270,22)
                                                                                                                                                                                                                                                                                                                                                                                                                                          depenStepComboBox.setBounds(275,110,270,22);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dependencyPanel.add(depenPrimaryTextField);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ILabel18.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                depLabel.setForeground(java.awt.Color.black);
                                          dependencyPanel.add(depenOutputTextField);
                                                                                                                                                                                                                                                                                                                                                                                                dependencyPanel.add(depenStepComboBox);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       depenPrimaryTextField.setEditable(false)
depenOutputTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JLabel18.setText("Project Label:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  depLabel.setBounds(294,6,280,24)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dependencyPanel.add(depLabel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dependencyPanel.add(JLabel18);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ILabel18.setBounds(0,6,280,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         depLabel.setText("Label");
```

//{INIT_MENUS

JLabel19.setHorizontalAlignment(com.sun.java.swing.SwingConst

nstants.CENTER);

ants.RIGHT);

//{REGISTER_LISTENERS

existedCompComboBox.addItemListener(ISymItem) depenCancelButton.addActionListener(ISymAction); existedEHLComboBox.addItemListener(ISymItem); compDeleteButton.addActionListener(ISymAction) existedStepComboBox.addItemListener(ISymItem) EHLDeleteButton.addActionListener(ISymAction) depenEHLComboBox.addItemListener(ISymItem); depenStepComboBox,addItemListener(ISymItem); compClearButton.addActionListener(ISymAction); stepDeleteButton.addActionListener(ISymAction); EHLDoneButton.addActionListener(ISymAction); compSaveButton.addActionListener(ISymAction); secondaryButton.addActionListener(ISymAction); EHLClearButton.addActionListener(ISymAction); compAddButton.addActionListener(ISymAction); depenOKButton.addActionListener(ISymAction); compEditButton.addActionListener(ISymAction); stepClearButton.addActionListener(1SymAction); EHLAddButton.addActionListener(ISymAction); EHLEditButton.addActionListener(ISymAction); stepAddButton.addActionListener(ISymAction); stepSaveButton.addActionListener(ISymAction) stepEditButton.addActionListener(ISymAction); stepTypesList.addMouseListener(aSymMouse); SymMouse aSymMouse = new SymMouse(); doneButton.addActionListener(ISymAction); SymAction ISymAction = new SymAction(); SymItem ISymItem = new SymItem();

stepTypesList.setModel(listModel); setEnabled(3, false);

```
public ProjectSchemaFrame( String selectedProject, String pathName ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (new ProjectSchemaFrame()).setVisible(true);
* Is launched when a user wants to create or edit step.cfg,
                                                                                                                                      * @param pathName: the path of the current project
                                                                                                    * @param selectedProject : current project name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         frameSizeAdjusted = true;
                                   component.cfg, loop.cfg, or dependency.cfg
                                                                                                                                                                                                                                                                              this.setProjectLabel( selectedProject );
                                                                                                                                                                                                                                                                                                                                                  this.readInputFiles( this.pathName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                  this.pathName = pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (b)
                                                                                                                                                                                                                                             this();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       addNotify.
```

com.sun.java.swing.JButton stepEditButton = new com.sun.java.swing.JTabbedPane configManagTabbedPane = new setSize(insets.left + insets.right + size.width, insets.top + // Adjust size of frame according to the insets and menu com.sun.java.swing.JButton stepDeleteButton = new com.sun.java.swing.JButton stepClearButton = new com.sun.java.swing.JButton stepAddButton = new com.sun.java.swing.JMenuBar menuBar com.sun.java.swing.JPanel stepTypePanel = new com.sun.java.swing.JPanel mainPanel = new com.sun.java.swing.JLabel JLabel3 = new com.sun.java.swing.JLabel JLabel4 = new com.sun.java.swing.JLabel JLabel1 = new com.sun.java.swing.JLabel JLabel2 = new insets.bottom + size.height + menuBarHeight) menuBarHeight = boolean frameSizeAdjusted = false; Insets insets = getInsets() int menuBarHeight = 0; //{DECLARE_CONTROLS if (menuBar != null) menuBar.getPreferredSize().height; com.sun.java.swing.JTabbedPane() getRootPane().getJMenuBar(); // Used by addNotify com.sun.java.swing.JButton(); com.sun.java.swing.JButton(); com.sun.java.swing.JButton(); com.sun.java.swing.JPanel(); com.sun.java.swing.JPanel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel();

com.sun.java.swing.JComboBox existedStepComboBox = new com.sun.java.swing.JTextArea stepDescriptionTextArea = new com.sun.java.swing.JTextField stepNameTextField = new com.sun.java.swing.JTextField compIDTextField = new com.sun.java.swing.JPanel componentTypePanel = new com.sun.java.swing.JTextField stepIDTextField = new com.sun.java.swing.JButton compDeleteButton = new com.sun.java.swing.JButton compClearButton = new com.sun.java.swing.JButton compAddButton = new com.sun.java.swing.JButton compEditButton = new com.sun.java.swing.JButton stepSaveButton = new com.sun.java.swing.JLabel stepLabel = new com.sun.java.swing.JLabel JLabel16 = new com.sun.java.swing.JLabel JLabel6 = new com.sun.java.swing.JLabel JLabel7 = new com.sun.java.swing.JLabel JLabel8 = new com.sun.java.swing.JLabel JLabel5 = new com.sun.java.swing.JComboBox(); com.sun.java.swing.JTextField(); com.sun.java.swing.JTextField(); com.sun.java.swing.JTextField() com.sun.java.swing.JTextArea() com.sun.java.swing.JButton(); com.sun.java.swing.JButton(); com.sun.java.swing.JButton(); com.sun.java.swing.JButton() com.sun.java.swing.JButton() com.sun.java.swing.JButton() com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JPanel(); com.sun.java.swing.JLabel() com.sun.java.swing.JLabel()

bar

com.sun.java.swing.JTextField compNameTextField = new com.sun.java.swing.JTextField();

com.sun.java.swing.JComboBox existedCompComboBox = new com.sun.java.swing.JComboBox();

com.sun.java.swing.JTextArea compDescriptionTextArea = new com.sun.java.swing.JTextArea()

com.sun.java.swing.JButton compSaveButton = new com.sun.java.swing.JButton();

com.sun.java.swing.JLabel JLabel17 = new

com.sun.java.swing.JLabel();

com.sun.java.swing.JLabel compLabel = new

com.sun.java.swing.JPanel EHLPanel = new com.sun.java.swing.JLabel();

com.sun.java.swing.JPanel();

com.sun.java.swing.JLabel JLabel13 = new com.sun.java.swing.JLabel();

com.sun.java.swing.JLabel JLabel14 = new

com.sun.java.swing.JButton EHLAddButton = new com.sun.java.swing.JLabel()

com.sun.java.swing.JButton EHLDeleteButton.= new com.sun.java.swing.JButton(); com.sun.java.swing.JButton();

com.sun.java.swing.JButton EHLClearButton = new com.sun.java.swing.JButton();

com.sun.java.swing.JButton EHLEditButton = new com.sun.java.swing.JButton();

com.sun.java.swing.JTextField EHLNameTextField = new com.sun.java.swing.JTextField()

com.sun.java.swing.JTextField EHLPathTextField = new com.sun.java.swing.JTextField();

com.sun.java.swing.JButton EHLDoneButton = new

com.sun.java.swing.JLabel label = new com.sun.java.swing.JButton();

com.sun.java.swing.JLabel();

com.sun.java.swing.JLabel projectLabel = new com.sun.java.swing.JLabel();

com.sun.java.swing.JLabel JLabel15 = new com.sun.java.swing.JLabel();

com.sun.java.swing.JComboBox existedEHLComboBox = new com.sun.java.swing.JComboBox()

com.sun.java.swing.JLabel JLabel20 = new

com.sun.java.swing.JLabel();

com.sun.java.swing.JScrollPane stepTypesScrollPane = new com.sun.java.swing.JScrollPane();

com.sun.java.swing.JList stepTypesList = new

com.sun.java.swing.JList();

com.sun.java.swing.JPanel dependencyPanel = new

com.sun.java.swing.JPanel();

com.sun.java.swing.JLabel JLabel10 = new com.sun.java.swing.JLabel JLabel9 = new com.sun.java.swing.JLabel();

com.sun.java.swing.JLabel();

com.sun.java.swing.JLabel JLabel12 = new com.sun.java.swing.JLabel();

com.sun.java.swing.JButton depenOKButton = new

com.sun.java.swing.JButton();

com.sun.java.swing.JButton depenCancelButton = new

com.sun.java.swing.JButton();

com.sun.java.swing.JTextField depenSecondaryTextField = new com.sun.java.swing.JTextField();

com.sun.java.swing.JTextField depenOutputTextField = new

com.sun.java.swing.JComboBox depenStepComboBox = new com.sun.java.swing.JTextField();

com.sun.java.swing.JTextField depenPrimaryTextField = new com.sun.java.swing.JComboBox() com.sun.java.swing.JTextField()

com.sun.java.swing.JLabel JLabel18 = new com.sun.java.swing.JLabel();

com.sun.java.swing.JLabel depLabel = new

com.sun.java.swing.JLabel();

com.sun.java.swing.JLabel JLabel19 = new

com.sun.java.swing.JLabel()

```
public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     else if (object == compDeleteButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (object == stepDeleteButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else if (object == compAddButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if (object == compEditButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else if (object == stepClearButton)
                                   com.sun.java.swing.JButton secondaryButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if (object == stepEditButton)
                                                                                                    com.sun.java.swing.JButton doneButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (object == stepAddButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stepDeleteButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               compAddButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stepClearButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               compEditButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                stepAddButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stepEditButton_actionPerformed(event);
com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                          com.sun.java.swing.JButton();
                                                                                                                                              com.sun.java.swing.JButton();
```

com.sun.java.swing.JComboBox depenEHLComboBox = new

```
doneButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else if (object == depenCancelButton)
                                     else if (object == compClearButton)
                                                                                                                                                                                                                                                                                                                                                                     else if (object == EHLDeleteButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else if (object == EHLClearButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (object == EHLDoneButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if (object == depenOKButton)
                                                                                                                                                  else if (object == EHLAddButton)
                                                                                                                                                                                                                   EHLAddButton_actionPerformed(event);
else if (object == EHLEditButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else if (object == stepSaveButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if (object == compSaveButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if (object == secondaryButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else if (object == doneButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       depenCancelButton_actionPerformed(event);
compDeleteButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                           EHLDeleteButton_actionPerformed(event);
                                                                                                          compClearButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EHLClearButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EHLDoneButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             compSaveButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              depenOKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      secondaryButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                           EHLEditButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                stepSaveButton_actionPerformed(event);
```

```
this.stepVector.setElementAt( stepType, this.selectedStepIndex-
* Edit selected step type object and delete before add it into combo box
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.stepVector.removeElementAt( this.selectedStepIndex - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Delete selected step type object and remove it from combo box and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            stepDeleteButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                       String stepDescription = stepDescriptionTextArea.getText();
                                                                                                                                                                       stepEditButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                               StepType stepType = new StepType( stepID, stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.stepClearButton_actionPerformed( null );
                                                                                                                                                                                                                                                                                                                                            String stepName = stepNameTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.setStepComboBox(this.stepVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.setStepComboBox( this.stepVector );
                                                                                                                                                                                                                                                                                                   String stepID = stepIDTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.setListModel( this.stepVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.setListModel( this.stepVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(this.selectedStepIndex > 0){
                                                                                                                                                                                                                                                     if(this.selectedStepIndex > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   saveTab[0] = false;
                                                                                                                            public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stepDescription );
                                           and stepVector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  stepVector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ·::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stepAddButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        String stepDescription = stepDescriptionTextArea.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   StepType stepType = new StepType( stepID, stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Add new step type object into combo box and stepVector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.stepClearButton_actionPerformed( null );
                                                                                                                                                                                                               * @param selectedProject: the current project name
                                                                                                                                                                                                                                                                                              public void setProjectLabel( String selectedProject ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String stepName = stepNameTextField.getText();
                                                                                                                            * Set the current project name for each panel's title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.setStepComboBox( this.stepVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.stepVector.addElement( stepType );
                                                                                                                                                                                                                                                                                                                                         this.projectLabel.setText( selectedProject );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String stepID = stepIDTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                               this.compLabel.setText( selectedProject );
                                                                                                                                                                                                                                                                                                                                                                                       this.stepLabel.setText( selectedProject );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.depLabel.setText( selectedProject );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.setListModel(this.stepVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    saveTab[0] = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 stepDescription );
```

```
stepClearButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   stepSaveButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ObjectOutputStream stepOut= new ObjectOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( this.existedStepComboBox.getItemCount() > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FileOutputStream stepFileOut = new FileOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.existedStepComboBox.setSelectedIndex(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.setStepComboBox( this.stepVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Save all step type objects in stepVector in step.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     stepOut.writeObject( this.stepVector );
                                                                                                                                                     this.stepClearButton_actionPerformed( null );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.stepDescriptionTextArea.setText(""):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.stepNameTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.stepIDTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( this.stepVector.size()> 0 ){
                                                                                                                                                                                                                                                                                                                * Refresh all text fields in step panel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if(stepOut != null ){
                                                                                                                  //Clean up the frame
saveTab[0] = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.pathName+"\\step.cfg" );
                                                                                                                                                                                                                                                                                                                                                                                                 public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        stepFileOut );
```

```
* Add new component type object into combo box and compVector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ComponentType compType = new ComponentType( compID,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              compAddButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String compDescription = compDescriptionTextArea.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String compName = compNameTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.stepClearButton_actionPerformed( null );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.stepClearButton_actionPerformed( null );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.setCompComboBox( this.compVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.compVector.addElement( compType );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             String compID = compIDTextField.getText();
                                                                                                                                                                                                                                                                               debug("FileNotFoundException: "+fe);
                                                                                                                                                                                                                                         catch( FileNotFoundException fe ){
saveTab[0] = true;
                                                                                                                                    stepFileOut.close();
                                                                                                                                                                                                                                                                                                                                                                                   debug("IOException: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     //Clean up the frame
                                                                                                  stepOut.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       compName, compDescription );
                                                                   stepOut.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  saveTab[1] = false;
                                                                                                                                                                                                                                                                                                                                             catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void
```

```
* Save all component type objects in compVector in component.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           compClearButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           compSaveButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( this.existedCompComboBox.getItemCount() > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ObjectOutputStream compOut= new ObjectOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FileOutputStream compFileOut = new FileOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.existedCompComboBox.setSelectedIndex(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                compOut.writeObject(this.compVector);
this.setCompComboBox( this.compVector );
                                                                                                                                                                                                             this.compClearButton_actionPerformed( null );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.compDescriptionTextArea.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.compNameTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                          * Refresh all text fields in component panel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.compIDTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( this.compVector.size()> 0 ){.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      saveTab[1] = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(compOut != null)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.pathName+"\\component.cfg");
                                                                                                                                                                  //Clean up the frame
                                        saveTab[1] = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       compFileOut );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Delete selected component type object and remove it from combo box
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.compVector.removeElementAt( this.selectedCompIndex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ComponentType compType = new ComponentType( compID,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 compDeleteButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         String compDescription = compDescriptionTextArea.getText();
                                                                                                                      * Edit selected component type object and delete before add it into
                                                                                                                                                                                                                                                                                              compEditButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                String compName = compNameTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.compClearButton_actionPerformed( null );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.setCompComboBox( this.compVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.compVector.setElementAt( compType,
                                                                                                                                                                                                                                                                                                                                                                                                                     String compID = compIDTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(this.selectedCompIndex > 0){
                                                                                                                                                                                                                                                                                                                                                                          if(this.selectedCompIndex > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     compName, compDescription)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     saveTab[1] = false;
                                                                                                                                                                  combo box and compVector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.selectedCompIndex-1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public void
                                                                                                                                                                                                                                                     public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and compVector
```

```
* Edit selected EHL object and delete before add it into combo box and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.EHLVector.setElementAt( ehl, this.selectedEHLIndex-1 );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EHLEditButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Delete selected EHL object and remove it from combo box and
                                                                                                                                                                                                                                                                                           this.EHLClearButton_actionPerformed( null );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String EHLName = EHLNameTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.EHLClearButton_actionPerformed( null );
                                                                     EHL ehl = new EHL( EHLName, EHLPath );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHL ehl = new EHL( EHLName, EHLPath );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.setEHLComboBox( this.EHLVector );
                                                                                                                                           this.setEHLComboBox( this.EHLVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String EHLPath = EHLPathTextField.getText();
                                                                                                          this.EHLVector.addElement(ehl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(this.selectedEHLIndex > 0){
                                                                                                                                                                                                                                                        //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         saveTab[2] = false;
                                                                                                                                                                                  saveTab[2] = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHLVector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EHLVector
                                       else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOptionPane.showMessageDialog(this, "The loop must have at least
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Error", JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EHLAddButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       StringTokenizer st = new StringTokenizer( EHLPath, "," );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tokenizeVector.addElement( st.nextToken() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Add new EHL object into combo box and EHLVector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.compClcarButton_actionPerformed( null );
this.setCompComboBox( this.compVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String EHLName = EHLNameTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String EHLPath = EHLPathTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vector tokenize Vector = new Vector();
                                                                                                                                                                                                                                                                                      debug("FileNotFoundException: "+fe);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 while( st.hasMoreTokens() ){
                                                                                                                                                                                                                                                 catch(FileNotFoundException fe){
                                                                                                                                           compFileOut.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( tokenize Vector.size()< 2) {
                                                                                                                                                                                                                                                                                                                                                                                                 debug("IOException: "+e);
                                                                     compOut.flush();
                                                                                                        compOut.close();
                                                                                                                                                                                                                                                                                                                                                            catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //Clear the Frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              return;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 steps!",
```

```
* Save all dependency objects in depenHashtable in dependency.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Before saving it, check all secondary inputs of each dependency to be
                                                                                                                                                                                                                                                                                                                    this.configManagTabbedPane.setSelectedIndex(3);
                                                                                                                                                                       this.setDepenEHLComboBox( this.EHLVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.EHLClearButton_actionPerformed( null );
                                                                   EHLOut.writeObject( this.EHLVector );
                                                                                                                                                                                                                                             //Only use for EHL tabbedPane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  debug("FileNotFoundException: "+fe);
                                                                                                                                                                                                                                                                                                                                                                                                                          this.setEnabled(1, false); this.setEnabled(2, false);
                                                                                                                                                                                                                                                                                                                                                                                        this.setEnabled(0, false);
if(this.EHLVector.size()>0){
                                                                                                                                                                                                                                                                               this.setEnabled(3, true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                catch(FileNotFoundException fe){
                               if(EHLOut != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             debug("IOException: "+e);
                                                                                                                                          this.readDepFile();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EHLFileOut.close();
                                                                                                     saveTab[2] = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EHLOut.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EHLOut.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     //Clean up the frame
                                                                                                                                     this.EHLVector.removeElementAt( this.selectedEHLIndex - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Save all EHL objects in EHLVector in loop.cfg file and go directly
                                 EHLDeleteButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EHLClearButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EHLDoneButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ObjectOutputStream EHLOut = new ObjectOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FileOutputStream EHLFileOut = new FileOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                        this.EHLClearButton_actionPerformed( null );
                                                                                                                                                                                                           this.setEHLComboBox( this.EHLVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.EHLNameTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.EHLPathTextField.setText("");
                                                                                                 if(this.selectedEHLIndex > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Refresh all text fields in EHL panel
                                                                                                                                                                                                                                                                                                                                                          //Clean up the frame
                                                                                                                                                                                                                                                saveTab[2] = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.pathName+"\loop.cfg");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   into dependency panel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void
  public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EHLFileOut );
```

* The warning message will show up if one of dependency objects * didn't set the secondary input

```
JOptionPane.showMessageDialog(this, "Can not process
                                                                                                                                                                            since \nsome steps do not have the secondary \n input component types!",
                                                                                                                                                                                                                                                                                                                                                                                                                                                       dependencyOut.writeObject( this.depenHashtable );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.configManagTabbedPane.setSelectedIndex(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        debug("FileNotFoundException_DepFileOut: "+fe);
                                   if( ((String)v.elementAt(i)).equals("") ){
                                                                                                       !((String)v2.elementAt(i)).equals(STEP_TYPE_TITLE) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .his.depenSecondaryTextField.setText("");
  for( int i=0; i<v.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.depenPrimaryTextField.setText("")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.depenOutputTextField.setText("");
                                                                                                                                                                                                         "Error",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   catch(FileNotFoundException fe){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dependencyOut.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               dependencyOut.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                      if( dependencyOut != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.setEnabled(0, true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.setEnabled(1, true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.setEnabled(3, false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.setEnabled(2, true);
                                                                                                                                                                                                                                            JOptionPane.ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               depFileOut.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          debug("IOException: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      saveTab[3] = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    catch( IOException e ){
                                                                                                                                                                                                                                                                                      return;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ObjectOutputStream dependencyOut = new ObjectOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dependency d = (Dependency)enum.nextElement();
                                 depenOKButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           v.addElement(((String)d.getSecondaryInput()).trim());
                                                                                                                                                                                                                                                                                                                                                                                                                  !this.depenHashtable.containsKey((String)enum.nextElement())){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FileOutputStream depFileOut = new FileOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              v2.addElement(((String)d.getStep()).trim());
                                                                                                                                                                                                                                                                                                              Enumeration enum = (Enumeration)listModel.elements();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      enum = this.depenHashtable.elements();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       while (enum.hasMoreElements()) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if(this.depenHashtable.size() > 0){
                                                                                                                                                                                                                                                                                                                                               while( enum.hasMoreElements() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       v2.addElement("");
                                                                                                                                                                                                         Vector v2 = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.pathName+"\\dependency.cfg" );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v.addElement("");
                                                                                                                                                                       Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      v2.addElement("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                   v.addElement("");
                                                                                                                                                                                                                                            Dependency dep = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( d!= null ){
public void
                                                                                                     saveLastDep();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          enum = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    depFileOut );
```

```
int j = JOptionPane.showOptionDialog(this, "Would you like to
                                                                                                                                                                                                                                                                                    doneButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOptionPane.WARNING_MESSAGE, null, options, options[0]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void setEnabled( int tabIndex, boolean flag ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Warning", JOptionPane.DEFAULT_OPTION,
                                                                                                                                       * Check all the changes had saved or not before exit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EHLDoneButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     compSaveButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          depenOKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              stepSaveButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                Object[] options = { "Yes", "No" };
this.depenSecondaryTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param tabIndex : an index of panel
                                                                                                                                                                                                                                                                                                                                                     for( int i=0; i<saveTab.length; i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param flag: true or false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * Set enable a tab panel
                                                                                                                                                                                                                                                                                                                                                                                           if(!saveTab[i]){
                                                                                                                                                                             ProjectSchemaFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               dispose();
                                                                                                                                                                                                                                                  public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( j==0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       save?",
                                                                                                                                                                                                                                                  depenCancelButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                ObjectOutputStream dependencyOut = new ObjectOutputStream(
                                                                                                  * Before leave the dependency panel, save all the depency objects in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dependencyOut.writeObject( this.depenHashtable );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.configManagTabbedPane.setSelectedIndex(0);
                                                                                                                                                                                                                                                                                                                                                       FileOutputStream depFileOut = new FileOutputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( this.depenHashtable.size() > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 debug("IOException_DepCancel: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.depenPrimaryTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.depenOutputTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dependencyOut.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dependencyOut.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if( dependencyOut != null ){
                                                                                                                                                                                                                                                                                                                                                                                           this.pathName+"\\dependency.cfg" );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.setEnabled(1, true); this.setEnabled(2, true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.setEnabled(0, true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.setEnabled(3, false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     depFileOut.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              catch(IOException e){
                                                                                                                                                                                                              public void
                                                                                                                                       depenHashtable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  depFileOut );
```

```
this.existedCompComboBox.addItem(COMPONENT_TYPE_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ComponentType ct = (ComponentType)compVector.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Refresh compHashtable and existedCompComboBox, and add new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param compVector: contains the current component type objects
                                               * @param stepVector: contains the current step type objects
                                                                                                                                                                                                                              this.existedStepComboBox.addItem(STEP_TYPE_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                  StepType st = (StepType)stepVector.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void setCompComboBox( Vector compVector ){
                                                                                                                                 public void setStepComboBox( Vector stepVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.existedCompComboBox.removeAllItems();
                                                                                                                                                                              this.existedStepComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.existedStepComboBox.addItem(stID);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for( int i=0; i < compVector.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.compHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                     for( int i=0; i< stepVector.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String ctID = ct.getComponentID();
                                                                                                                                                                                                                                                                                                                   this.stepHashtable = new Hashtable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.stepHashtable.put( stID, st );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               String stID = st.getStepID();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    //set step Hashtable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       //set step Hashtable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Refresh stepHashtable and existedStepComboBox, and add new items
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void itemStateChanged(java.awt.event.ItemEvent
this.configManagTabbedPane.setEnabledAt( tabIndex, flag );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if (object == existedCompComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else if (object == existedStepComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else if (object == existedEHLComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            else if (object == depenEHLComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (object == depenStepComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          existedCompComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           existedEHLComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           existedStepComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      depenEHLComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    depenStepComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                         * @param string: the output string
                                                                                                                                                                                                                                                                                                          public void debug( String string ){
                                                                                                                                                                            * Short cut to print the output
                                                                                                                                                                                                                                                                                                                                                          System.out.println(string);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 event)
```

```
String depStep = ((String)stepVector.elementAt( i )).trim();
                                                                                        this.depenEHLComboBox.addItem(ehl.getEHLName());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.depenStepComboBox.addItem(STEP_TYPE_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void setDependStepComboBox( Vector stepVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               File directory = new File( this.pathName, depStep );
                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param stepVector : contains the current step names
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (String)this.depenEHLComboBox.getSelectedItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.depenStepComboBox.addItem(depStep);
                                                                                                                                                                                                                                                                                                                * Refresh depenStepComboBox, add new items,
                                          EHL chl = (EHL)EHLVector.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                              * and create new directory for the selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         !his.depenStepComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stepIDTextField.setText( st.getStepID() );
for( int j=0; j< EHLVector.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for( int i=0; i< stepVector.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * @param st : selected step type object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void setStepInfo( StepType st ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * View the selected step type object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(!directory.isDirectory()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             directory.mkdir();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String loopName =
                                                                                                                                                                                                                                                                                                                * Refresh EHLHashtable and existedEHLComboBox, and add new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void setDepenEHLComboBox( Vector EHLVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.existedEHLComboBox.addItem(PROCESS_TITLE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param EHLVector: contains the current EHL objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param EHLVector: contains the current EHL objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.existedEHLComboBox.addItem(EHLName);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void setEHLComboBox( Vector EHLVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Refresh depenEHLComboBox and add new items
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EHL chl = (EHL)EHLVector.elementAt( i );
                                                                                           this.existedCompComboBox.addItem(ctID);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.existedEHLComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this. EHL Hashtable. put( EHL Name, ehl );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    String EHLName = ehl.getEHLName();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for( int i=0; i< EHLVector.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.EHLHashtable = new Hashtable();
  this.compHashtable.put( ctID, ct );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  //set step Hashtable
```

stepDescriptionTextArea.setText(st.getStepDescription());

stepNameTextField.setText(st.getStepName());

this.depenEHLComboBox.removeAllItems();

```
ObjectInputStream stepIn = new ObjectInputStream( fileInput );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Read step.cfg, component.cfg, and loop.cfg files and insert their
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FileInputStream fileInput = new FileInputStream( stepFile );
Dependency dep = (Dependency)this.depenHashtable.get(
                                                                                                                                                                                  this.depenSecondaryTextField.setText(secondInput);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * into stepVector, compVector, and EHLVector respectively
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.stepVector = (Vector)stepIn.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   File stepFile = new File(this.pathName, "step.cfg");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.setStepComboBox( this.stepVector );
                                                                                   String secondInput = dep.getSecondaryInput()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.setStepComboBox( this.stepVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * @param pathName: the path of current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void readInputFiles( String pathName ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.setListModel(this.stepVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                debug("IOException_StepInitial: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( this.stepVector.size() > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(this.stepVector.size() > 0){
                                                                                                                                    if(!secondInput.equals("")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( stepIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( stepFile.exists() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      stepIn.close();
                                        selectedDepStep );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         contents
                                                                                                                                                                                                                                                                                                                                                                                                                                                    compDescriptionTextArea.setText( ct.getComponentDescription() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      StringTokenizer st = new StringTokenizer( selectedDepStep,"-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( this.depenHashtable.containsKey( selectedDepStep ) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param selectedDepStep: selected dependency object name
                                                                                                                                                                                                                                                                                                                                                                                                         compNameTextField.setText( ct.getComponentName() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(!selectedDepStep.equals(STEP_TYPE_TITLE)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EHLNameTextField.setText( ehl.getEHLName() );
                                                                                                                                                                                                                                                                                                                                                              compIDTextField.setText( ct.getComponentID() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHLPathTextField.setText( ehl.getEHLPath() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.depenPrimaryTextField.setText(_after );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void setDepInfo( String selectedDepStep ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.depenOutputTextField.setText(__after);
                                                                                                                                                                                                                                                                                                                public void setCompInfo( ComponentType ct ){

    * @param ct : selected component type object

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String before_ = st.nextToken("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String_after = st.nextToken("-");
                                                                                                                              * View the selected component type object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * View the selected dependency object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param ehl : selected EHL object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void setEHLInfo( EHL ehl ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * View the selected EHL object
```

```
ObjectInputStream EHLIn = new ObjectInputStream( fileInput );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Read dependency.cfg file and insert its content into depenHashtable
                                                                                                                                                                                                                                                                                   FileInputStream fileInput = new FileInputStream( loopFile );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        debug("ClassNotFoundException_EHLInInitial: "+ex);
                                                                                                                                                                                                                                                                                                                                                                                                                 this.EHLVector = (Vector)EHLIn.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.setEHLComboBox( this.EHLVector );
                                                                                                                                                                File loopFile = new File(this.pathName, "loop.cfg");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.setEHLComboBox( this.EHLVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.setEHLComboBox( this.EHLVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       debug("IOException_EHLInInitial: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( this.EHLVector.size() > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( this.EHLVector.size() > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (this.EHLVector.size() > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                       if( EHLIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void readDepFile(){
                                                                                                                                                                                                          f( loopFile.exists() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EHLIn.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FileInputStream fileInput = new FileInputStream( componentFile)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ObjectInputStream compIn = new ObjectInputStream( fileInput );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                File componentFile = new File(this.pathName, "component.cfg");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                debug("ClassNotFoundException_CompInitial: "+ex);
                                                                                                                                                             debug("ClassNotFoundException_SteppInitial: "+ex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.compVector = (Vector)compIn.readObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.setCompComboBox( this.compVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.setCompComboBox( this.compVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.setCompComboBox( this.compVector );
                                                                                                                                                                                                                                               this.setStepComboBox( this.stepVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 debug("IOException_CompInitial: "+e);
this.setListModel(this.stepVector);
                                                                                                                                                                                                                                                                                      this.setListModel(this.stepVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catch( ClassNotFoundException ex ){
                                                                                                                        catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   f(this.compVector.size() > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (this.compVector.size() > 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( this.compVector.size() > 0 ){
                                                                                                                                                                                                          if(this.stepVector.size() > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( componentFile.exists() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if( compIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    compIn.close();
```

```
this.setCompInfo( (ComponentType)this.compHashtable.get(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   existedCompComboBox_itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(this.compHashtable.containsKey(selectedCompID)){
                                        if( this.stepHashtable.containsKey( selectedStepID ) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.compClearButton_actionPerformed( null );
                                                                                       this.setStepInfo( (StepType)this.stepHashtable.get(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                * List all existing component type objects in the project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String selectedCompID = (String)event.getItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.existedCompComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * List all existing EHL objects in the project
else if( this.selectedStepIndex > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * and allow a user to view or edit them
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * and allow a user to view or edit them
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( this.selectedCompIndex == 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.selectedCompIndex =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        selectedCompID ) );
                                                                                                                             selectedStepID );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      event)
                                                                                                                                                                   FileInputStream fileInput = new FileInputStream( dependencyFile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   existedStepComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                 this.depenHashtable = (Hashtable)dependencyIn.readObject();
                                        File dependencyFile = new File(this.pathName, "dependency.cfg");
                                                                                                                                                                                                                                                       ObjectInputStream dependencyIn = new ObjectInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           debug("ClassNotFoundException_readDepIn: "+ex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.stepClearButton_actionPerformed( null );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String selectedStepID = (String)event.getItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * List all existing step type objects in the project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            debug("IOException_readDepIn: "+e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.existedStepComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             catch( ClassNotFoundException ex ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * and allow a user to view or edit them
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( this.selectedStepIndex == 0 ){
                                                                                                                                                                                                                                                                                                                                           if( dependencyIn != null ){
                                                                                 if( dependencyFile.exists() ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.selectedStepIndex =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dependencyIn.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             catch( IOException e ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             void
```

```
if (secondary != null) && (this.selectedDepenStepIndex > 0) ){
                                                                                                                                                                                                             dep = (Dependency) this.depenHashtable.get( stepName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dep = (Dependency) this.depenHashtable.get( stepName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                              dep = new Dependency( loopName, stepName, output,
                                                                                                                                                                        if this.depenHashtable.containsKey( stepName ) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if(selectedDepStep.equals(STEP_TYPE_TITLE)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.depenHashtable.put( stepName, dep );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.depenSecondaryTextField.setText("");
                                                                                                                                                                                                                                                                                                dep.setSecondaryInput( secondary );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.depenSecondaryTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (this.depenHashtable.containsKey(stepName )) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dep.setSecondaryInput( secondary );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.depenPrimaryTextField.setText("")
                                                                                        this.depenStepComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.depenOutputTextField.setText("")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.setDepInfo( selectedDepStep );
                                                                                                                                                                                                                                                         if(!secondary.equals("")){
                                                   this.selectedDepenStepIndex =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( !secondary.equals("") ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if( (stepName != null) &&
       if(this.testIndex < 2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.testIndex = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          primary, secondary);
                                                                                                                                                                                                                                                                                                                                                                                                                            else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            else{
existedEHLComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (String)this.depenStepComboBox.getItemAt(this.selectedDepenStepIndex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          void depenStepComboBox_itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String secondary = (String)this.depenSecondaryTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        String primary = (String)this.depenPrimaryTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                             if(this.EHLHashtable.containsKey(selectedEHLName))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String output = (String)this.depenOutputTextField.getText();
                                                                                                                                                                                                                                                                                                                            this.EHLClearButton_actionPerformed( null );
                                                                                if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                       String selectedEHLName = (String)event.getItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * List all existing step type objects in a selected project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            selectedDepStep = ((String)event.getItem()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * and allow a user to view, edit, or set secondary input
                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.setEHLInfo( (EHL)this.EHLHashtable.get(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (String)this.depenEHLComboBox.getSelectedItem();
                                                                                                                                                                                                          this.existedEHLComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                    if( this.selectedEHLIndex == 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String selectedDepStep = null; if( event != null ){
                                                                                                                                                                this.selectedEHLIndex =
                                                                                                                                                                                                                                                                                           //Clean up the frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dependency dep = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String loopName =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    String stepName =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             selectedEHLName ) );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.testIndex++;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              event)
```

```
stepTypesList_mouseClicked(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            String EHLStep = (String) this.EHLPathTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Error", JOptionPane.ERROR_MESSAGE);
                                                                                    public void mouseClicked(java.awt.event.MouseEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void stepTypesList_mouseClicked(java.awt.event.MouseEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOptionPane.showMessageDialog(this, s+" is already in this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.EHLPathTextField.setText(EHLStep+", "+s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            StringTokenizer st = new StringTokenizer(EHLStep, ",");
class SymMouse extends java.awt.event.MouseAdapter
                                                                                                                                                                                                                 Object object = event.getSource();
                                                                                                                                                                                                                                                       if (object == stepTypesList)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ((String)this.stepTypesList.getSelectedValue()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String s1 = ((String) st.nextToken()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Monitor mouse click action on stepTypesList
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(!EHLStep.equals("")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     while(st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Vector v = new \ Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             v.addElement(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         v.addElement(s1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(!v.contains(s)){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             String s =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   process!".
                                                                                                                                  event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 event)
                                                                                                                                                                                                                 depenEHLComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                          int selectedIndex = this.depenEHLComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                     if( event.getStateChange() == ItemEvent.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     StepType st = (StepType) stepVector.elementAt( i );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EHL ehl = (EHL)this.EHLHashtable.get( selectedItem );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tokenizeVector.addElement( st.nextToken() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if( this.EHLHashtable.containsKey( selectedItem ) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.setDependStepComboBox( tokenizeVector );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.listModel.addElement( st.getStepID() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * @param stepVector: all existing step type objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void setListModel( Vector stepVector ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vector tokenizeVector = new Vector();
                                                                                                                                                                                                                                                                                                                                            String selectedItem = (String)event.getItem(); .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           StringTokenizer st = new StringTokenizer(
                                                                                 * and allow a user to see its all step type objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for( int i=0; i< stepVector.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.listModel.removeAllElements();
                                        * List all existing EHL name in the project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      while (st.hasMoreTokens()) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Set step type object list in EHL panel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (String)ehl.getEHLPath(), "," );
                                                                                                                                                                        void
```

```
secondaryButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                       * Set all selected component type names from ListDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param objs : current selected items from ListDialog
                                                                                                                                                                                                                                                                                                                                                      * into secondary input text field in dependency panel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.depenSecondaryTextField.setText(s);
                                                                                                                          (new ListDialog(this, "Component Types List",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void setItemList(Object[] objs){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for( int i=1; i<objs.length; i++ ){
    s = s + ", "+ objs[i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String s = (String)objs[0];
                                                                                                                                                                         this.compVector)).setVisible(true)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( objs.length >= 1 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (String)this.depenStepComboBox.getItemAt(this.selectedDepenStepIndex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dep = new Dependency( loopName, stepName, output, primary,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    String secondary = (String)this.depenSecondaryTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Launch ListDialog where lists all existing component type names
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if (secondary != null) && (this selectedDepenStepIndex > 0) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dep = (Dependency) this.depenHashtable.get( stepName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String primary = (String)this.depenPrimaryTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String output = (String)this.depenOutputTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(this.depenHashtable.containsKey(stepName))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (String)this.depenEHLComboBox.getSelectedItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.depenHashtable.put( stepName, dep );
                                                                                                                                                                                                                   * Save the last selected dependency object with
                                                                                                                                                                                                                                                          * its content before quit the dependency panel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dep.setSecondaryInput( secondary );
                                    this.EHLPathTextField.setText(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.depenStepComboBox.getSelectedIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if( !secondary.equals("") ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.selectedDepenStepIndex =
                                                                                                                                                                                                                                                                                                                                              void saveLastDep(){
                                                                                                                                                                                                                                                                                                                                                                                          Dependency dep = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                          String loopName =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             String stepName =
else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       secondary);
```

```
JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                            // what Visual Cafe can generate, or Visual Cafe may be
                                                                            // components to the visual environment. It instantiates
  // This code is automatically generated by Visual Cafe
                                                                                                                                                       // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               connectionComboBox.setBounds(115,60,270,24);
                                                                                                                                                                                                                                                                                                    // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     connectButton.setActionCommand("jbutton");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getContentPane().add(connectionComboBox);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JLabell.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  temScrollPane.getViewport().add(itemList);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              temScrollPane.setBounds(15,190,470,200);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              exitButton.setActionCommand("Cancel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               connectButton.setBounds(400,120,85,24);
                                                                                                                                                                                                                                                                                                                                                                               setTitle("Review Component Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().add(itemScrollPane);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getContentPane().add(connectButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             exitButton.setBounds(212,400,75,24)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JLabell.setText("Available Links");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Label1.setBounds(15,162,470,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   connectButton.setText("Connect");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      getContentPane().add(exitButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      itemList.setBounds(0,0,467,197);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 itemScrollPane.setOpaque(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               getContentPane().add(JLabel1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              exitButton.setText("Exit");
                                                                                                                                                                                                                                                                                                                                           // (INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setSize(500,450);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                        setModal(true);
                                                                                                                                                                                           syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nts.CENTER);
                                        when you add
                                                                                                                                                                                                                                                                   unable to back
                                                                                                                and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                      * ReviewComponentContentDialog: View all links in a component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public Vector[] storedVector = {new Vector(), new Vector(), new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * storedVector: contains links of all available link types in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public ReviewComponentContentDialog(Frame parent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DefaultListModel listModel = new DefaultListModel();
                                                                                                                                                                                                                                                            public class ReviewComponentContentDialog extends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vector(), new Vector(), new Vector(), new Vector()}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JDialog implements CasesTitle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * listModel: list all links of a selected link type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Build ReviewComponentContentDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * component content of selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         super(parent);
                                                                                                                                                                                        import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                               content of selectted ster
                                                                        import java.awt.*;
                                                                                                            import java.util.*;
                                                                                                                                                  import java.io.*;
package Cases;
```

```
// Record the size of the window prior to calling parents
                              * After select a step and press OK button from ListDialog, it will be
                                                                                                                                         public ReviewComponentContentDialog(String title, Vector[]
                                                                                                                                                                                                                                                                                                                                                                                                   public ReviewComponentContentDialog(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ReviewComponentContentDialog()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                          this.storedVector = storedVector;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         setTitle(sTitle);
                                                                                                                                                                                                                                                       this.titleLabel.setText(title);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (new
                                                                                                                                                                                 storedVector){
                                                                                                                                                                                                                 this();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              addNotify.
                                                                          launched
titleLabel.setHorizontalAlignment(com.sun.java.swing.SwingCons
                                                                                                                                                                                 itleLabel.setFont(new Font("Dialog", Font.BOLD, 18));
                                                                                                                                                                                                                                                                                                                             selectedTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       connectionComboBox.addItemListener(ISymItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  connectButton.addActionListener(ISymAction);
                                                                                                                                            titleLabel.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               connectionComboBox.addItem(LINK_FILE_NAMES[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SymMouse aSymMouse = new SymMouse();
                                                                                                                                                                                                                                                                                                                                                                selectedTextField.setBounds(16,120,384,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     exitButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for( int i=0; i<LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           itemList.addMouseListener(aSymMouse);
                                                                                                                                                                                                                                                                                          getContentPane().add(selectedTextField);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SymItem ISymItem = new SymItem();
                                                                                                                                                                                                                                                       selectedTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    connectionComboBox.addItem(LINKS_TITLE);
                                                                                                                                                                                                               itleLabel.setBounds(25,10,450,30);
                                                                                                        getContentPane().add(titleLabel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public ReviewComponentContentDialog()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // (REGISTER LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                   //{INIT_MENUS
                                                                   itleLabel.setText("jlabel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 itemList.setModel(listModel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           {}
                                tants.CENTER);
```

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connectionComboBox_itemStateChanged(java.awt.event.ItemEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void actionPerformed(java.awt.event.ActionEvent
  public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           listModel.addElement(storedVector[i].elementAt(j));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for( int i=0; i<LINK_FILE_NAMES.length; i++ ){
                                                                                                                                                              if (object == connectionComboBox)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if( event.getStateChange() == event.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Object object = event.getSource();
                                                                                                                        Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( selectedItem.equals(LINK_FILE_NAMES[i]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String selectedItem = (String)event.getItem();
                                                                                                                                                                                                                                       connectionComboBox_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (object == connectButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for( int j=0; j<storedVector[i].size(); j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       i= LINK_FILE_NAMES.length;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             listModel.removeAllElements();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    selectedTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                             * Select a link type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         event)
                                                                                                                                                                                                                                                                                                             setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JComboBox connectionComboBox = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JTextField selectedTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                                  // Adjust size of frame according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JScrollPane itemScrollPane = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JButton connectButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JButton exitButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JLabel titleLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JLabel JLabel1 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JList itemList = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 boolean frameSizeAdjusted = false;
                                                                                                                                                      frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                          Insets insets = getInsets();
                                                                           if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          //(DECLARE_CONTROLS
super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JScrollPane();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JTextField();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                     insets.bottom + size.height);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JList();
```

```
void itemList_mouseClicked(java.awt.event.MouseEvent event)
                                                                                                                                                                                                                                                                                                                                                     public void mouseClicked(java.awt.event.MouseEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Set the selectedTextField when a user selects an item from this list
void exitButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     itemList_mouseClicked(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String s = (String)this.itemList.getSelectedValue();
                                                                                                                                                                                                                                                                          class SymMouse extends java.awt.event.MouseAdapter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (object == itemList)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.selectedTextField.setText(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( event.getClickCount() > 0) {
                                                                                                                  setVisible(false);
                                                                                                                                                          dispose();
                                                                                                                                                                                                                                                                                                                                                                                                  event)
                                               event)
    connectButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                   void connectButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (new PersonnelFrame(s.trim(), "View")).setVisible(true);
                                                                                                                                                                                                                                                                                                                  * and view the file which the name is the content of selectedTextField
                                                                             exitButton_actionPerformed(event);
                                                                                                                                                                                                                                   * Connect to an application which matchs with selected item from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           int index = connectionComboBox.getSelectedIndex()-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        throw new RuntimeException(e.toString());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Runtime runtime = Runtime.getRuntime();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(connectionComboBox.getSelectedIndex()>0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      runtime.exec(EXECUTIONS[index]+s);
                                       else if (object == exitButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String s = " " + selectedTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Exit ReviewComponentContentDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   catch( Exception e) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (index == 3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(!s.equals("")){
                                                                                                                                                                                                                                                                             connectionComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                try {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  event)
```

```
JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                  // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Label1.setFont(new Font("Dialog", Font.BOLD, 16));
                                                                                                                                                                                                                                                       // components to the visual environment. It instantiates
                                                                                                                                                                             // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                              // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tableScrollPane.getViewport().add(skillTable);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JLabel1.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tableScrollPane.setBounds(33,54,324,169)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              getContentPane().add(tableScrollPane);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OKButton.setActionCommand("OK");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     skillTable.setBounds(0,0,321,166);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        getContentPane().add(OKButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tableScrollPane.setOpaque(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JLabel1.setBounds(15,6,375,47);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     getContentPane().add(JLabel1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JLabel1.setText("Skill List");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OKButton.setText("OK");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //{INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setTitle("Skill List");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setSize(405,305);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         setVisible(false);
                                                                                                      public SkillTableFrame()
                                * Build SkillTableFrame
                                                                                                                                                                                                                                                                                                                                                                  syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nts.CENTER);
                                                                                                                                                                                                                                                                                                                                                                                                                                       unable to back
                                                                                                                                                                                                                    when you add
                                                                                                                                                                                                                                                                                         and initializes
                                                                                                                                                                                                                                                                                                                                                           * Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                  * SkillTableFrame: a table of skill IDs, skill names, and skill levels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public class SkillTableFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * skillVector: selected skill to return to parent frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     private Vector skillVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * scf: parent frame to launch this frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * pf: parent frame to launch this frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * skillModel: monitor skill table
                                                                    import com.sun.java.swing.table. *;
                                                                                                                                                                                                                                                                                                                                                                                                  * Implements interface I_Cases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            StepContentFrame scf = null;
                             import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PersonnelFrame pf = null;
                                                                                                         import java.awt.event.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mplements CasesTitle
                                                                                                                                           import java.util.*;
import java.awt.*;
```

protected DefaultTableModel skillModel = null;

package Cases;

```
// Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // Adjust size of frame according to the insets and menu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JMenuBar menuBar =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (new SkillTableFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                                                   setLocation(50, 50);
                               public SkillTableFrame(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                            static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Insets insets = getInsets();
                                                                                                                                                                                                                          public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    int menuBarHeight = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                               super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        super.addNotify();
                                                                                                                             setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      getRootPane().getJMenuBar();
                                                                                               this();
                                                                                                                                                                                                                                                                                     if (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              bar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * StepContentFrame launch this frame when skill button is slected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * PersonnelFrame launch this frame when skill button is slected
                                                                                                                                                                                                                                                                                                                                                                                                           cancelButton.addActionListener(ISymAction);
                                                             cancelButton.setActionCommand("Cancel");
                                                                                                                                                                                                                                                                                                                                             SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                           OKButton.addActionListener(ISymAction);
                                                                                                                           cancelButton.setBounds(211,252,73,24);
OKButton.setBounds(121,252,73,24);
                                                                                           getContentPane().add(cancelButton);
                               cancelButton.setText("Cancel");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public SkillTableFrame(StepContentFrame scf){
                                                                                                                                                                                                                                                                                                             //{ {REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public SkillTableFrame(PersonnelFrame pf){
                                                                                                                                                                                                                        //{ INIT_MENUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 createSkillTable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * create the new skill table
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.scf = scf;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.pf = pf;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this();
```

```
"+skillModel.getValueAt(index,1)+": "+skillModel.getValueAt(index,2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   void cancelButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                  * Return all selected skills to a parent frame and exit SkillTableFrame
                                                                                                                                                                                                      void OKButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                        int[] selectedRows = skillTable.getSelectedRows();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.scf.setSkillComboBox(skillVector);
                                                                                                                                                                                                                                                                                                                                           for( int i=0; i<selectedRows.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                            String s = skillModel.getValueAt(index,0)+":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.pf.setSkillComboBox(skillVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Exit this frame without return anything
                                                                                                                                                                                                                                                                                                                                                                              int index = selectedRows[i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                skillVector.addElement(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else if( this.pf != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if( this.scf != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                */
                                                                                                                                                                                                                                           event)
                                                                                                  setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cancelButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OKButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JScrollPane tableScrollPane = new com.sun.java.swing.JScrollPane();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else if (object == cancelButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JButton cancelButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JButton OKButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JTable skillTable = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (object == OKButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JLabel JLabel1 = new
                                                                                                                                    insets.bottom + size.height + menuBarHeight);
                                menuBarHeight =
                                                                                                                                                                                                                                                                       boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                           //{DECLARE_CONTROLS
if (menuBar != null)
                                                               menuBar.getPreferredSize().height;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          //{ DECLARE_MENUS
//} }
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JButton();
                                                                                                                                                                                                                                    // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JTable();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            event)
```

```
* StepContent: Create a step content object and save it in step.cnt file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * status: status of the step, eg. approved, scheduled, complete,...
                                                                                                      * Step Content Object which is used to save in step.cnt file
                                                                                                                                                                                                                                                                                                                     public class StepContent implements Serializable {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * securityLevel: security level of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           private Vector skill = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    private String stepName = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    private int security Level = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * stepName : step version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             private String status = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * skill: a vector of skills
                                                                                                                                                                                                            import java.io.Serializable;
                                                                                                                                                                                                                                                  import java.util.*;
        package Cases;
                                                                                                      String[] skillColumnNames = {"Skill ID", "Skill Name",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JComboBox skillLevelComboBox = new JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // Use the combo box as the editor in the "Skill Level"
                                                                                                                                                                           final Object[][] skillData = new Object[20][3];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for( int k= 0; k <SKILL_LEVEL; ++k ){
    skillLevelComboBox.addItem(""+k);</pre>
                                                                                                                                                                                                                                                                                                                                                                                     for( int j=0; j<SKILL_LIST.length; j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           skillModel = new DefaultTableModel(skillData,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     skillLevelColumn.setCellEditor(new
                                                                                                                                                                                                                                                                                                                                                                                                                skillData[j][1] = SKILL_LIST[j];
skillData[j][2]=""+0;
* Create a skill table with 3 columns and 21 rows
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TableColumn skillLevelColumn =
                                                                                                                                                                                                                                             for( int i = 1; i < SKILL_ID; ++i){
                                                                                                                                                                                                                                                                               skillData[i-1][0] = ""+i;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         skillTable.getColumn(skillColumnNames[2]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     skillTable.setModel(skillModel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DefaultCellEditor(skillLevelComboBox));
                                                                    void createSkillTable(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            skillColumnNames);
                                                                                                                                       "Skill Level" };
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        column.
```

*/

```
private String organizer = null;

** predecessors : a vector of atomics
** private Vector predecessors = new Vector();

** private Vector predecessors = new Vector();

** private Vector prodecessors = new Vector();

** private int priority of the step
private int priority of the step
private int priority of the step
private int priority = 0;

** private int priority = 0;

** private int priority = 0;

** private int priority = 0;

** private int priority = 0;

** private int priority = 0;

** private String deadline = null;

** private String deadline = null;

** private String earliestStartTime = null;

** finishTime : when the job is finished

private String finishTime = null;

** finishTime : the actual day to start the job

** private String finishTime = null;

** finishTime : the actual day to start the job

** private String finishTime = null;
```

```
* This StepContent constructor is used to create a step content object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              int estimatedDuration, String deadline, String startTime,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int securityLevel, String evaluation, String evaluator,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public StepContent( String stepName, String status, Vector skill,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String organizer, Vector predecessors, int priority,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String finishTime, String manager){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                his.estimatedDuration = estimatedDuration;
                                                                                                                                                                                                                                                                                                                                                                                                                   * evaluator: a person's ID to evaluate the job
* manager: a person's ID to manage the job
                                                                                                                                                                                                     * evaluation : description of an evaluation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.'securityLevel = securityLevel;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 his.earliestStartTime = startTime;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.predecessors = predecessors;
                                                                                                                                                                                                                                                                                        private String evaluation = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.evaluation = evaluation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 private String evaluator = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.stepName = stepName;
                                                                                   private String manager = null
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.evaluator = evaluator;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.organizer = organizer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.deadline = deadline;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.priority = priority;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.status = status;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.skill = skill;
```

private String realStartTime = null;

* organizer : a person's ID to organize the step

```
* @return skill: vector of skills of the step
                                                                             * @return status: status of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void setSecurityLevel(int i){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Set security level for the step
                                                                                                                                                                                                                                                                                                                                                                 public void setSkill(Vector v){
                                                                                                                                                                                                                                                                                                                 * @param v : vector of skills
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param i: security level
                                                                                                                          public String getStatus(){
   return this.status;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public Vector getSkill(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.securityLevel = i;
                                                                                                                                                                                                                                                              * Set skills for the step
                       * Status of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Skills of the step
                                                                                                                                                                                                                                                                                                                                                                                             this.skill = v;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            return skill;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @return stepName: the step's name
                                                                                                                                                                                                                                                                                                                                                                                          public void setStepName(String s){
                                                                                                                             * Empty StepContent constructor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @param s : status of the step
this.finishTime = finishTime;
                                                                                                                                                                                                                                                                                                                                          * @param s : name of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void setStatus(String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public String getStepName(){
    return this.stepName;
                          this.manager = manager;
                                                                                                                                                                                                                                                                                        * Set a name for the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Set status for the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Get the step's name
                                                                                                                                                                                  public StepContent(){
                                                                                                                                                                                                                                                                                                                                                                                                                      this.stepName = s;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.status = s;
```

```
* @return securityLevel: security level of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @return evaluation: evaluation of the step
                                                                                                                                                                                                                                                                                                                                          * @param s : a string of evaluation
                                                                                                                                                                                                                                                                                                                                                                                                    public void setEvaluation(String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public void setEvaluator(String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @param s : evaluator's name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public String getEvaluation(){
                                                                                                                        public int getSecurityLevel(){
* Security level of the step
                                                                                                                                                                                                                                                                             * Set evaluation of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Set evaluator for the step
                                                                                                                                                         return this.securityLevel;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Evaluation of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     return this.evaluation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Evaluator of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                     this.evaluation = s;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.evaluator = s;
```

```
* @return organizer: organizer of the step
* @return evaluator: evaluator of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void setPredecessors(Vector v){
                                                                                                                                                                                                                                                                 * @param s : the name of organizer
                                                                                                                                                                                                                                                                                                                       public void setOrganizer(String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @param v : vector of atomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Set predecessors for the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public String getOrganizer(){
                                                          public String getEvaluator(){
                                                                                                                                                                                                        * Set organizer for the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Predecessors of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.predecessors = v;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Organizer of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return this.organizer;
                                                                                        return this.evaluator;
                                                                                                                                                                                                                                                                                                                                                       this.organizer = s;
```

```
* @param d : a string to express the earliest start time
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * @return earliestStartTime: plan to start on this day
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @return deadline : a string to express the deadline
                                                                                                                                                                                                                                                                  * @param d : exactly day to be done this job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Set earliest start time for the job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void setStartTime(String d){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * The day to plan starting the job
                                                                                                                                                                                                                                                                                                                                     public void setDeadline(String d){
                                                              return this.estimatedDuration;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.earliestStartTime = d;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public String getDeadline(){
                                                                                                                                                                                                   * Set deadline of the job
                              public int getDuration(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  return this.deadline;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Deadline of the job
                                                                                                                                                                                                                                                                                                                                                                          this.deadline = d;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @param i : prediction of how long it will take to finish the job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @return estimatedDuration: time to finish the job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @return priority: an integer of priority level
* @return predecessors: a vector of atomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Estimate duration to finish the job
                                                            public Vector getPredecessors(){
                                                                                                                                                                                                                                                                                                     * @param i : level of priority
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void setDuration(int i){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.estimatedDuration = i;
                                                                                                                                                                                                                                                                                                                                                                        public void setPriority(int i){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Set duration for the step
                                                                                               return this.predecessors;
                                                                                                                                                                                                                                 * Set priority for the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public int getPriority(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * Priority of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return this.priority;
                                                                                                                                                                                                                                                                                                                                                                                                             this.priority = i;
```

```
* @param realStartTime: a string to express the day to start the job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * @return realStartTime: a string to express the day to start the job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @return finishTime : a string to express the finish day
                                                                                                                                                                                                                                                          * @param d: a string to express the finish day
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void setRealStartTime(String d){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Set the exactly day to start the job
                                                                                                                                                                                                                                                                                                                                public void setFinishTime(String d){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public String getRealStartTime(){
                                                                                                                                                                                 * Set the finish time for the job
                                return this.earliestStartTime;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public String getFinishTime(){
    return this.finishTime;
public String getStartTime(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * The day to start the job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.realStartTime = d;
                                                                                                                                                                                                                                                                                                                                                                      this.finishTime = d;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * The finish day
```

```
return this.realStartTime;

/**

* Set manager's ID for the step

* @param s: the manager's ID

*/

public void setManager(String s){
    this.manager = s;

}

/**

* The manager's ID to manage the job

* @return manager: the manager's ID

*/

public String getManager(){
    return this.manager;
}
```

```
titleLable.setHorizontalAlignment(com.sun.java.swing.SwingCons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                           // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                        // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exitButton.setActionCommand("Save");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             exitButton.setBounds(590,470,75,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getContentPane().add(deleteButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              titleLable.setText("Step Content:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().add(saveButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         setTitle("SPIDER-Step Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().add(exitButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(titleLable);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        deleteButton.setBounds(0,0,0,0);
                                 * pathName : the complete path of current step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                saveButton.setBounds(0,0,0,0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               exitButton.setText("Exit");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       // (INIT CONTROLS
                                                                                                                                                                                                                                                                                                public StepContentFrame()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setSize(700,550);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setVisible(false);
                                                                                                         public String pathName = null;
                                                                                                                                                                                                                        * Build StepContentFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tants.RIGHT);
                                                                                                                                                                                                                                                                                                                                                                                                                  when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Implement CasesTitle where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * selectedPred: contains all selected predecessors from ListDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * selectedSkill: contains all selected skills from SkillTableFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                      * StepContentFrame: Use to create/delete/view step content of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public class StepContentFrame extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * atomicsVector: contains all atomics of the selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 import com.symantec.itools.awt.MaskedTextField;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public Vector atomicsVector = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Implements interface I_StepContent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           implements CasesTitle, I_StepContent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public Vector selectedPred = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public Vector selectedSkill = null;
                                                                                                                                                                                                                                                                 import com.sun.java.swing.*;
                                                                                                         import java.awt.event.*;
                                                                        import java.awt. *;
                                                                                                                                                                                    import java.util.*;
                                                                                                                                                     import java.text.*;
                                                                                                                                                                                                                           import java.io. *;
package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 selected step
```

titleLable.setForeground(java.awt.Color.black);
titleLable.setFont(new Font("Dialog", Font.BOLD, 18));
titleLable.setBounds(82,30,130,30); //y=6
/**stepVersionTF**/
stcpVersionTextField.setEditable(false);
getContentPane().add(stepVersionTextField);

stepVersionTextField.setBackground(java.awt.Color.white);

stepVersionTextField.setBounds(102,105,200,24);//246,55,300,24)

/**/ /**stepVersionLabel**/ JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta

JLabel1.setText("Step Version");
getContentPane().add(JLabel1);
JLabel1.setForeground(java.awt.Color.black);
JLabel1.setBounds(1,105,100,24);//154,55,90,24);
/**/
getContentPane().add(managerComboBox);

JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

managerComboBox.setBounds(472,405,200,24);

JLabel2.setText("Manager");
getContentPane().add(JLabel2);
JLabel2.setForeground(java.awt.Color.black);
JLabel2.setBounds(371,405,100,24);
/**Status label**/

J.abel3.setHorizontalAlignment(com.sun.java.swing.SwingConsta

JLabel3.setText("Status");
getContentPane().add(JLabel3);
JLabel3.setForeground(java.awt.Color.black);

JLabel3.setBounds(1,155,100,24);//1,105,100,24); getContentPane().add(statusComboBox);

statusComboBox.setBounds(102,155,200,24);//102,105,200,24);

JLabel5.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabelS.setText("Evaluation"); getContentPane().add(JLabelS); JLabelS.setForeground(java.awt.Color.black); JLabelS.setBounds(1,305,100,24); JLabel6.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JL.abel6.setText("Evaluator"); getContentPane().add(JLabel6); JL.abel6.setForeground(java.awt.Color.black); JL.abel6.setBounds(1,355,100,24); getContentPane().add(evaluatorComboBox); evaluatorComboBox.setBounds(102,355,200,24); JLabel7.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel7.setText("Security Level"); getContentPane().add(JLabel7); JLabel7.setForeground(java.awt.Color.black); JLabel7.setBounds(1,255,100,24); getContentPane().add(securityLevelComboBox); securityLevelComboBox.setBounds(102,255,200,24); JLabel9.setHorizontalAlignment(com.sun.java.swing.SwingConstants.RIGHT);

JLabel9.setText("Organizer");
getContentPane().add(JLabel9);
JLabel9.setForeground(java.awt.Color.black);
JLabel9.setBounds(1,405,100,24);
getContentPane().add(organizerComboBox);

organizerComboBox.setBounds(101,405,200,24); getContentPane().add(predecessorsComboBox); predecessorsComboBox.setBounds(472,105,200,24);

JLabel12.setHorizontalAlignment(com.sun.java.swing.SwingConstnts.RIGHT);

JLabel12.setText("Priority");
getContentPane().add(JLabel12);
JLabel12.setForeground(java.awt.Color.black);
JLabel12.setBounds(371,155,100,24);
getContentPane().add(priorityComboBox);
priorityComboBox.setBounds(472,155,200,24);
//**SkillComboBox
getContentPane().add(skillComboBox);

14);

skillComboBox.setBounds(102,205,200,24);//102,155,200,24); //**/ JLabel16.setHorizontalAlignment(com.sun.java.swing.SwingConst

JLabel16.setText("Estimated Duration");
getContentPane().add(JLabel16);
JLabel16.setForeground(java.awt.Color.black);
JLabel16.setBounds(361,205,110,24);
getContentPane().add(evaluationTextField);
evaluationTextField.setBounds(101,305,200,24);
deadlineTextField.setEditable(false);
getContentPane().add(deadlineTextField);
deadlineTextField.setBackground(java.awt.Color.white);
deadlineTextField.setBounds(472,255,200,24);
earliestSTTextField.setEditable(false);
getContentPane().add(earliestSTTextField);

Time");

earliestSTTextField.setBackground(java.awt.Color.white); earliestSTTextField.setBounds(472,305,200,24); finishTimeTextField.setBditable(false); getContentPane().add(finishTimeTextField);

finishTimeTextField.setBackground(java.awt.Color.white); finishTimeTextField.setBounds(472,355,200,24); selectedLabel.setText("jlabel"); getContentPane().add(selectedLabel); selectedLabel.setForeground(java.awt.Color.black); selectedLabel.setFont(new Font("Dialog", Font.BOLD,

selectedLabel.setBounds(217,30,400,30); //y=6 predecessorsButton.setText("Predecessors"); predecessorsButton.setActionCommand("jbutton"); getContentPane().add(predecessorsButton); predecessorsButton.setBounds(351,105,120,24); //**SkillButton.setText("Skill"); skillButton.setActionCommand("Skill"); setContentPane().add(skillButton):

skillButton.setActionCommand("Skill");
getContentPane().add(skillButton);
skillButton.setBounds(21,205,80,24);//21,155,80,24);
//**/
deadlineButton.setText("Deadline");

deadlineButton.setActionCommand("Deadline"); getContentPane().add(deadlineButton); deadlineButton.setBounds(371,255,100,24); startTimeButton.setText("Earliest Start Time"); startTimeButton.setActionCommand("Earliest Start

getContentPane().add(startTimeButton); startTimeButton.setBounds(332,305,139,24); finishTimeButton.setText("Finish Time"); finishTimeButton.setActionCommand("Finish Time"); getContentPane().add(finishTimeButton); finishTimeButton.setBounds(371,355,100,24); getContentPane().add(estDurationTextField); estDurationTextField.setBounds(472,205,200,24); /// }

//{ INIT_MENUS

```
this();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fileInput);
                                                                                                                                                                                                                                                                  oredecessorsButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * CasesFrame launch this frame when Step Content menu item is
                                                                                                                                                                                                                                                                                                                                                                                                                        finishTimeButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                  startTimeButton.addActionListener(ISymAction)
                                                                                                                                                                                                                                                                                                                                             deadlineButton.addActionListener(ISymAction);
                                                                                                                                                                                          deleteButton.addActionListener(ISymAction);
                                                                                                                 SymAction ISymAction = new SymAction();
                                                                                                                                                     saveButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                  skillButton.addActionListener(ISymAction);
                                                                                                                                                                                                                            exitButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             statusComboBox.addItem("Decomposed");
                                                                             //{REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              securityLevelComboBox.addItem(i+"");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for( int i=0; i<SECURITY_LEVEL; i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    statusComboBox.addItem("Abandoned");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           statusComboBox.addItem("Completed");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for( int j=0; j<PRIORITY_LEVEL; j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       statusComboBox.addItem("Scheduled")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          statusComboBox.addItem("Proposed");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   statusComboBox.addItem("Approved")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         statusComboBox.addItem("Assigned");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        priorityComboBox.addItem(j+"");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                //Set priority combobox from 0..5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //Set security level from 0..5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //Set status combobox
selected or
```

```
FileInputStream fileInput = new FileInputStream(f);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DateFormat df = DateFormat.getDateInstance();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ObjectInputStream oi = new ObjectInputStream(
                                                                               * @param traceFrame : = null if launched from Step Content menu
                                                                                                                                                                                                                                                                                                                               public StepContentFrame(TraceFrame traceFrame, String stepName,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Date d = df.parse(theCalendar.getDate());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.stepVersionTextField.setText( stepName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          setInitial((StepContent)oi.readObject());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              symantec.itools.awt.util.Calendar theCalendar = new
                                                                                                                                                                 != null if launched from Step Content button
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       File f = new File(pathName+"\\step.cnt");
                                                                                                                                                                                                                                             * @param atomics: vector of the current step's atomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.selectedLabel.setText( pathName );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catch(Exception e){System.out.println(e);}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          inishTimeTextField.setText(d.toString());
* Step Content button from Trace Frame is pressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     earliestSTTextField.setText(d.toString());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        deadlineTextField.setText(d.toString());
                                                                                                                                                                                                        * @param pathName: the path of current step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.atomicsVector = atomics;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.pathName = pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( oi != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      setStakeHolders();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     symantec.itools.awt.util.Calendar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(f.exists()){
                                                                                                                                                                                                                                                                                                                                                                            String pathName, Vector atomics)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            else{
```

```
// Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  // Adjust size of frame according to the insets and menu
                                                                                                                                                                                                                                                                                                                                                                                          (new StepContentFrame()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JMenuBar menuBar =
                                                                                                                                                                                            setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                          static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    menuBarHeight =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Insets insets = getInsets();
                                                                                               public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int menuBarHeight = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (menuBar != null)
                                                                                                                                                                                                                           super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 menuBar.getPreferredSize().height;
  setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   getRootPane().getJMenuBar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         addNotify.
                                                                                                                                                                                                                         DateFormat df = DateFormat.getDateInstance();
                                                                                                                                                                                                                                                              Date d = df.parse(theCalendar.getDate());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   deleteButton.setActionCommand("Save");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   saveButton.setActionCommand("Save");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    deleteButton.setBounds(515,470,75,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        debug("ClassNotFoundException: "+c);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   saveButton.setBounds(440,470,75,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(deleteButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              getContentPane().add(saveButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catch( ClassNotFoundException c ){
                                                                                                                                                                                                                                                                                                                                                       finishTimeTextField.setText(d.toString());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    deleteButton.setText("Delete");
                                                                                                                                                                                                                                                                                                                          earliestSTTextField.setText(d.toString());
                                                                                                                                                                                                                                                                                                                                                                                                                         catch( Exception e){System.out.println(e);}
                                                                                                                                                                                                                                                                                       deadlineTextField.setText(d.toString());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    saveButton.setText("Save");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public StepContentFrame(String sTitle)
                                                                                                                                                           debug("IOException: "+io);
                                                                                                                          catch( IOException io ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( traceFrame != null ){
                               fileInput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setReadOnly();
oi.close();
```

setSize(insets.left + insets.right + size.width, insets.top + com.sun.java.swing.JComboBox evaluatorComboBox = new com.sun.java.swing.JComboBox managerComboBox = new com.sun.java.swing.JTextField stepVersionTextField = new com.sun.java.swing.JComboBox statusComboBox = new com.sun.java.swing.JButton deleteButton = new com.sun.java.swing.JButton saveButton = new com.sun.java.swing.JButton exitButton = new com.sun.java.swing.JLabel titleLable = new com.sun.java.swing.JLabel JLabel3 = new com.sun.java.swing.JLabel JLabel5 = new com.sun.java.swing.JLabel JLabel6 = new com.sun.java.swing.JLabel JLabel4 = new com.sun.java.swing.JLabel JLabel1 = new com.sun.java.swing.JLabel JLabel2 = new insets.bottom + size.height + menuBarHeight); boolean frameSizeAdjusted = false; //{DECLARE_CONTROLS com.sun.java.swing.JComboBox(); com.sun.java.swing.JComboBox() com.sun.java.swing.JComboBox() com.sun.java.swing.JTextField() com.sun.java.swing.JButton(); com.sun.java.swing.JButton(); com.sun.java.swing.JButton(); // Used by addNotify com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel(); com.sun.java.swing.JLabel() com.sun.java.swing.JLabel()

com.sun.java.swing.JLabel JLabel7 = new com.sun.java.swing.JLabel()

com.sun.java.swing.JComboBox securityLevelComboBox = new com.sun.java.swing.JComboBox()

com.sun.java.swing.JLabel JLabel9 = new

com.sun.java.swing.JLabel();

com.sun.java.swing.JComboBox organizerComboBox = new com.sun.java.swing.JComboBox();

com.sun.java.swing.JComboBox predecessorsComboBox = new com.sun.java.swing.JComboBox();

com.sun.java.swing.JLabel JLabel12 = new

com.sun.java.swing.JLabel();

com.sun.java.swing.JComboBox priorityComboBox = new com.sun.java.swing.JComboBox();

com.sun.java.swing.JComboBox skillComboBox = new com.sun.java.swing.JComboBox();

com.sun.java.swing.JLabel JLabel16 = new

com.sun.java.swing.JLabel();

com.sun.java.swing.JTextField evaluationTextField = new com.sun.java.swing.JTextField();

com.sun.java.swing.JTextField deadlincTextField = new com.sun.java.swing.JTextField();

com.sun.java.swing.JTextField earliestSTTextField = new com.sun.java.swing.JTextField();

com.sun.java.swing.JTextField finishTimeTextField = new com.sun.java.swing.JTextField()

com.sun.java.swing.JLabel selectedLabel = new com.sun.java.swing.JLabel() com.sun.java.swing.JButton predecessorsButton = new com.sun.java.swing.JButton()

com.sun.java.swing.JButton skillButton = new

com.sun.java.swing.JButton();

com.sun.java.swing.JButton deadlineButton = new com.sun.java.swing.JButton(); com.sun.java.swing.JButton startTimeButton = new com.sun.java.swing.JButton();

```
int result = JOptionPane.showConfirmDialog( this, "step.cnt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Confirm message will ask a user before agree to delete step.cnt file
                                                                                                                                                                                                                                                                                                                                                                                                                ObjectOutputStream oo = new ObjectOutputStream(fileOutput);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        deleteButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                        saveButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                    * Create a step content object and save it in step.cnt file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oo.writeObject((StepContent)getStepContent());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 File f = new File(this.pathName, "step.cnt");
                                                                                                        * under the current step path. Then exit this frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                file will be deleted. Would you like to continue?",
                                                                                                                                                                                                                                                                                                                                                                              FileOutputStream(this.pathName+"\\step.cnt");
                                                                                                                                                                                                                                                                                                                                     FileOutputStream fileOutput = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         exitButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             debug("IOException: "+io);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catch(IOException io){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fileOutput.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(f.exists()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ){ | lluu = | 00 )}i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void
                                                                                                                                                                                      public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       oo.flush();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oo.close();
                                                                                                                                                                                                                                                                                                                                                                                                                     public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            deleteButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             skillButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                saveButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     exitButton_actionPerformed(event);
                                  //com.sun.java.swing.JTextField estDurationTextField = new
                                                                                                                                                                                                                                                                                                                                            class SymAction implements java.awt.event.ActionListener
                                                                                                          MyTextField estDurationTextField = new MyTextField();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else if (object == predecessorsButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            else if (object == finishTimeButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else if (object == startTimeButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if (object == deadlineButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     else if (object == deleteButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if (object == skillButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                else if (object == exitButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    predecessorsButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (object == saveButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          finishTimeButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        startTimeButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        deadlineButton_actionPerformed(event);
                                                                                                                                                                                                                             //{DECLARE_MENUS
//})
                                                                    com.sun.java.swing.JTextField();
com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   event)
```

com.sun.java.swing.JButton finishTimeButton = new

```
this.evaluatorComboBox.setSelectedItem((String)stepContent.getEvaluator(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.organizerComboBox.setSelectedItem((String)stepContent.getOrganizer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.securityLevelComboBox.setSelectedItem(""+stepContent.getSecurityL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.predecessorsComboBox.addItem(temp.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.predecessorsComboBox.addItem("Current Selected List");
                                    this.stepVersionTextField.setText((String)stepContent.getStepName());
                                                                                                                      this.statusComboBox.setSelectedItem((String)stepContent.getStatus());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.evaluationTextField.setText((String)stepContent.getEvaluation());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.selectedSkill.addElement(temp.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.selectedPred.addElement(temp.elementAt(i))
                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.skillComboBox.addItem(temp.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           temp = (Vector)stepContent.getPredecessors();
                                                                                                                                                                                                                                                                                                                                                                           this.skillComboBox.addItem(SKILL_TITLE);
                                                                                                                                                                                                                                                    temp = (Vector)stepContent.getSkill();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.selectedPred = new Vector();
                                                                                                                                                                                                                                                                                                                                 this.selectedSkill = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                  for( int i=0; i<temp.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for( int i=0; i<temp.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               //Set up predecessors comboBox
                                                                                                                                                                                                          //Set up skill comboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 temp = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( temp != null ){
                                                                                                                                                                                                                                                                                            if( temp != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * Set initial of this frame if the selected step already created step.cnt file
                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOptionPane.showMessageDialog(this, "step.cnt file does not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @param stepContent: step content object of this current step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               exitButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void setInitial( StepContent stepContent) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Warning Message", JOptionPane.INFORMATION_MESSAGE);
                                                                                                                                                                                                                                                                                       exitButton_actionPerformed(event);
                                  Message", JOptionPane. YES_NO_OPTION,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vector temp = new Vector();
                                                                            JOptionPane.QUESTION_MESSAGE)
"Confirm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           setVisible(false);
                                                                                                                 //\text{result} = 0 ==> \text{yes}
                                                                                                                                                                //result = 1 ==> no
                                                                                                                                                                                                  if (\text{result} == 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Exit this frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void
                                                                                                                                                                                                                                            f.delete();
```

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stepContent.setManager((String)this.managerComboBox.getSelectedItem())
                                                                                                                                                                                                                                                                                                                                   stepContent.setEvaluator((String)this.evaluatorComboBox.getSelectedItem(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       stepContent.sctOrganizer((String)this.organizerComboBox.getSelectedItem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                stepContent.setFinishTime((String)this.finishTimeTextField.getText());
stepContent.setStatus((String)this.statusComboBox.getSelectedItem());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * and add them in evaluator, organizer, and manager combo boxes
                                                                                                                                                                                                                         'stepContent.setEvaluation((String)this.evaluationTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stepContent.setStartTime((String)this.earliestSTTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  stepContent.setPredecessors((Vector)this.selectedPred);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       stepContent.setDeadline((String)this.deadlineTextField.getText());
                                                        stepContent.setSkill((Vector)this.selectedSkill);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String[] list = (String[])STAKEHOLDER.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Get all personnel objects in stakeholder directory,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.evaluatorComboBox.addItem(list[i]);
                                                                                                              stepContent.setSecurityLevel(security);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            stepContent.setDuration(duration);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for( int i=0; i<list.length; i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    stepContent.setPriority(priority);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public void setStakeHolders(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  return stepContent;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if( list.length > 0 ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.managerComboBox.setSelectedItem((String)stepContent.getManager())
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Integer((String)this.securityLevelComboBox.getSelectedItem())).intValue()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * @return stepContent object with all the information from this frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.finishTimeTextField.setText((String)stepContent.getFinishTime());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   stepContent.setStepName((String)this.stepVersionTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             String estDur = (String)this.estDurationTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Integer((String)this.priorityComboBox.getSelectedItem())).intValue();
                                                        this.priorityComboBox.setSelectedItem(""+stepContent.getPriority());
                                                                                                                                                                                                                                                                                                                                                                                         this.earliestSTTextField.setText((String)stepContent.getStartTime());
                                                                                                                                                                                                                                                                              this.deadlineTextField.setText((String)stepContent.getDeadline());
                                                                                                                                                                   this.estDurationTextField.setText(""+stepContent.getDuration());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               StepContent stepContent = new StepContent();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             duration = (new Integer(estDur)).intValue();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * Create a step content object before save it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public StepContent getStepContent(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(!estDur.equals("")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int security = (new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int priority = (new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         int duration = 0;
```

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* Launch SkillTableFrame to allows a user to select more than one
                                                                                                                                                                                                                                                                    StringTokenizer st = new StringTokenizer(sub2, "\\");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (new ListDialog(this, "Predecessor List", v)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    skillButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the Atomic = the Atomic + "-" + the String;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the Atomic = the Atomic + "." + the String;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              theAtomic = theAtomic + theString:
                                                                                                                String sub2 = sub1.substring(index+1);
                                                                                                                                                                                                                                                                                                                                                                                                                   String the String = st.nextToken();
                                        String sub1 = s.substring(length);
       String s = f.gctAbsolutePath();
                                                                            int index = sub1.indexOf("\\");
                                                                                                                                                                                                                                                                                                                                                                               while( st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             theAtomic = theString;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         v.addElement(theAtomic);
                                                                                                                                                                                                                                                                                                        String the Atomic = null;
                                                                                                                                                                                          debug("Sub1 = "+sub1);
debug("Sub2 = "+sub2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else if(j==1){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     else if(j==2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else if( j>2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                         \{(j==0)\}
                                                                                                                                                                                                                                                                                                                                            int j=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           skills
                                                                                                                                                                                                                                                          * This function is called when SkillTableFrame's OK button is pressed,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Launch ListDialog to allows a user to select more than one atomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               predecessorsButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String parentPath = CASESDIRECTORY.getAbsolutePath();
                                                                                                                                                                                                                                                                                                   * it will return a vector of selected skills. Use this vector to set
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.skillComboBox.addItem(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               File f = (File) this.atomicsVector.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for( int i=0; i<this.atomicsVector.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.skillComboBox.addItem(SKILL_TITLE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.selectedSkill.addElement(v.elementAt(i));
                                                                                                                                                                                                                                                                                                                                                                                                              * @param v : vector of skills from SkillTableFrame
this.organizerComboBox.addItem(list[i]);
                                      this.managerComboBox.addItem(list[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void setSkillComboBox(Vector v){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.skillComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          debug("Path length = "+length);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 int length = parentPath.length();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for( int i=0; i<v.size(); i++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.selectedSkill = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if( v.size() > 0 ){
                                                                                                                                                                                                                                                                                                                                       * skillComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public void
```

```
startTimeButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public void deadlineButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (new CalendarDialog(this,s,1)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                   (new CalendarDialog(this,s,0)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (new CalendarDialog(this,s,1)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (new CalendarDialog(this,s,0)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            catch(Exception e){System.out.println(e);}
                                                                                                                                                                                                                                                                                                                                                                                                                                              catch(Exception e){System.out.println(e);}
                                                                                                                                                                                                                                         String s = earliestSTTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    String s = deadlineTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Launch CalendarDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(!s.equals("")){
                                    * Launch CalendarDialog
                                                                                                                                                                                                                                                                                  if(!s.equals("")){
                                                                                                                    public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           deadlineTextField.setBackground(java.awt.Color.white);
                                                                                                                                                           * It is only called when Step Content button in TraceFrame is pressed.
                                                                                                                                                                                                    * The purpose is to view the content of this step, and the user won't
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       estDurationTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            finishTimeTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       evaluationTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            earliestSTTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 securityLevelComboBox.setEnabled( false );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          evaluatorComboBox.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organizerComboBox.setEnabled( false );
                                                                                                                                                                                                                                                                                                                                                                                                         managerComboBox.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          predecessorsButton.setEnabled( false );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       priorityComboBox.setEnabled( false );
                                                                                                                                                                                                                                                                                                                                                                                                                                                statusComboBox.setEnabled(false);
                                                                                                                                                                                                                                                                                     * to create/edit/delete/save this step content at all.
(new SkillTableFrame(this)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                finishTimeButton.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    skillButton.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                startTimeButton.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          deadlineButton.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               estDurationTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        evaluationTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      finishTimeTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               earliestSTTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           deadlineTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                public void setReadOnly(){
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this.predecessorsComboBox.addItem("Current Selected List");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * @param oa: an array of selected atomics, and elements of this array
                                                                                                                                                                                                                                                                                                                                                                                                                     * Get an array of selected atomics from ListDialog and set
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.predecessorsComboBox.addItem(oa[i]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.predecessorsComboBox.removeAllItems();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void setPredecessorComboBox(Object[] oa){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.selectedPred.addElement(oa[i]);
                                                                                                    if ( keyChar \geq 0 % & keyChar \leq 9 !!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.selectedPred = new Vector();
                                                                                                                                                                             super.processKeyEvent(e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for( int i=0; i<0a.length; i++){
                                                                   int keyChar = e.getKeyChar();
if (e.getModifiers() == 0)
                                                                                                                                          keyChar == \n'){
                                                                                                                                                                                                                                                                                                                                                                                                                                                        predecessorsComboBox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if( oa.length > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           are File objects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * it only allows a user to input integer. And, JTextField doesn't
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Custom JTextfield. It is used to create estDurationTextField
                                                                                                                                   finishTimeButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                            (new CalendarDialog(this,s,2)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (new CalendarDialog(this,s,2)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                catch(Exception e){System.out.println(e);}
                                                                                                                                                                                                     String s = finishTimeTextField.getText();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protected void processKeyEvent( KeyEvent e)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              public class MyTextField extends JTextField
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param string: the output string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * Short cut to print the output
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   System.out.println(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            void debug(String s){
                              * Launch CalendarDialog
                                                                                                                                                                                                                                      if(!s.equals("")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * that capability.
                                                                                                  public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                    else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            since
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            have
```

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* @param stepDescription: the description of step type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * @param stepName: name of the step type
this.stepDescription = stepDescription;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        public String getStepDescription(){
                                                                                                                                                                                                                                                      * @param stepID: step type ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return this.stepDescription;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public String getStepName(){
    return this.stepName;
                                                                                                                                                                                                                                                                                                              public String getStepID(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Step type description
                                                                                          public StepType() {}
                                                                                                                                                                                                                                                                                                                                               return this.stepID;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * Step type name
                                                                                                                                                                                       * Step type ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public StepType( String stepID, String stepName, String stepDescription
                                                                                                                                                                                                                                                                                                                     * StepType : Create a step type object and save it in step.cfg file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * This StepType constructor is used to create step type object
                                                                                            * Step Type Object which is used to save in step.cfg file
                                                                                                                                                                                                                                                  public class StepType implements Serializable {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * stepDescription: description of the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            private String stepDescription = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * stepName: name of the step type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                private String stepName = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.stepName = stepName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         private String stepID = null;
                                                                                                                                                                                         import java.io.Serializable;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * stepID: step type ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.stepID = stepID;
  package Cases;
```

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* currentLocation: make sure the current step is inserted at the right
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * currentPath: a string to keep the current step when tracing around
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * fnList: a vector of steps, strings, in the current project
                                                                                                                                                                                                                                                                                                                                                                                                                                          * history: a vector of all selected steps in this frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * stepVersion: holds the selected step version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * output: holds the output of the current step
                                                                                                                                                                                                                                         * pathName: the path of the current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public Vector history = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public Vector fnList = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public String currentPath = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  private String stepVersion = "";
                                                                                                                                                                                                                                                                                                                     public String pathName = null;
                                                                                                                       public int currentLocation = 0;
                                      position in the history vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              private String output = "";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Build TraceFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * currentIndex: monitor the position of current step in the history vector
                                                                                                                                                                                                                                                                                                                                                      * TraceFrame: the main purpose of this frame is to view and trace the step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Implement Cases Title where stores all global variables of Cases package
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public class TraceFrame extends com.sun.java.swing.JFrame implements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public Vector[] storedVector = {new Vector(), new Vector(), new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * casesFrame: parent frame which launch this frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vector(), new Vector(), new Vector(), new Vector()};
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * storedVector: stores contents of link files
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CasesFrame casesFrame = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * Implements interface I_Trace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public int currentIndex = 0;
                                                                                                                                                                                                mport com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CasesTitle, I_Trace
                                                                         import java.awt. *;
                                                                                                                  import java.util.*;
                                                                                                                                                        import java.io. *;
package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                     * substeps
```

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JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JLabel3.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JLabel4.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                  JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                stepContentButton.setActionCommand("Step Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JLabel3.setText("Secondary Input Component(s)");
                                                                                                                                                                                                                                                                                                                                                                                                                                                JLabel2.setText("Primary Input Component(s)");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JLabel4.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JLabel2.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                              JLabel1.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JLabel3.setForeground(java.awt.Color.black);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             stepContentButton.setBounds(560,1,107,24);
outputTextField.setBounds(242,100,300,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stepContentButton.setText("Step Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().add(stepContentButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  closeButton.setActionCommand("OK");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               closeButton.setBounds(302,252,75,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JLabel4.setText("Output Component");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getContentPane().add(closeButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JLabel4.setBounds(55,100,180,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JLabel2.setBounds(55,145,180,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JLabel3.setBounds(55,190,180,24);
                                                                                                                                                                                                                                                                                     JLabel1.setBounds(55,55,180,24);
                                                                                                                                                                JLabell.setText("Step Version");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 getContentPane().add(JLabel4);
                                                                                                                                                                                                       getContentPane().add(JLabel1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getContentPane().add(JLabel2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getContentPane().add(JLabel3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           closeButton.setText("Close");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nts.RIGHT);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nts.RIGHT);
                                                                                                                                                                                                                                                                                                                                                                                                       nts.RIGHT)
                                                                                                                                                                                                                                                                                                                                                                  // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             outputTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                       // components to the visual environment. It instantiates
                                                                                                                       // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                       // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               stepVersionTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        backwardButton.setActionCommand("Backward");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stepVersionTextField.setBounds(242,55,300,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                   // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        forwardButton.setActionCommand("Forward");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getContentPane().add(stepVersionTextField);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 homeButton.setActionCommand("Home");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      backwardButton.setBounds(150,1,92,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stepVersionTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().add(outputTextField);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(backwardButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        orwardButton.setBounds(68,1,81,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getContentPane().add(forwardButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 backwardButton.setText("Backward")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getContentPane().add(homeButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              orwardButton.setText("Forward");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  outputTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nomeButton.setBounds(1,1,67,24)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             homeButton.setText("Home");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setTitle("SPIDER-Trace");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         //{ INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 setSize(670,320);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          setVisible(false);
                                            public TraceFrame()
                                                                                                                                                                                                                                                                                                                                 syntax that matches
                                                                                                                                                                   when you add
                                                                                                                                                                                                                                                                                                                                                                                                              unable to back
                                                                                                                                                                                                                                              and initializes
```

```
public TraceFrame( CasesFrame casesFrame, String pathName, Vector
                                                                                                                                                                                                                                                                                                                   * CasesFrame launch this frame when Trace menu item is selected
                                                                          //Grey out when the history vector is empty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (new TraceFrame()).setVisible(true);
                                                                                                                                                         backwardButton.setEnabled(false);
                                                                                                                    forwardButton.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public TraceFrame(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                     components Vector, Vector fnList)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.casesFrame = casesFrame;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setInitial(componentsVector);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.pathName = pathName;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.fnList = fnList;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this();
                                                                          primaryTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                decomposeButton.setActionCommand("Decompose");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  stepContentButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          componentButton.setActionCommand("Component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               decomposeButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    componentButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     componentButton.setText("Component Content");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  backwardButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                         secondaryTextField.setBackground(java.awt.Color.white);
                                                                                                                                                                                                                                                                                                                 secondaryTextField.setBounds(242,190,300,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             orwardButton.addActionListener(ISymAction);
                                                                                                               primaryTextField.setBounds(242,145,300,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        homeButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          closeButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       raceButton.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SymAction ISymAction = new SymAction()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               decomposeButton.setBounds(310,1,102,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              componentButton.setBounds(413,1,146,24);
                                                                                                                                                                                               getContentPane().add(secondaryTextField);
                                                                                                                                                                                                                                                                                                                                                                                           raceButton.setActionCommand("Trace");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                decomposeButton.setText("Decompose");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getContentPane().add(decomposeButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getContentPane().add(componentButton);
                                     getContentPane().add(primaryTextField);
                                                                                                                                                         secondaryTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     raceButton.setBounds(242,1,67,24);
primaryTextField.setEditable(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                     getContentPane().add(traceButton);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //{REGISTER LISTENERS
                                                                                                                                                                                                                                                                                                                                                        raceButton.setText("Trace");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //{INIT_MENUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Content");
```

```
public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JTextField secondaryTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JTextField primaryTextField = new
  com.sun.java.swing.JTextField outputTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JButton stepContentButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JButton decomposeButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JButton componentButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JButton closeButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JButton traceButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if (object == homeButton)
                                                                                                                                                com.sun.java.swing.JLabel JLabel2 = new
                                                                                                                                                                                                                        com.sun.java.swing.JLabel JLabel3 = new
                                                                                                                                                                                                                                                                                             com.sun.java.swing.JLabel JLabel4 = new
                                                                        com.sun.java.swing.JLabel JLabel1 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //{{DECLARE_MENUS
//}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JTextField();
                                         com.sun.java.swing.JTextField()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JTextField()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JButton()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JButton()
                                                                                                                                                                                                                                                                                                                                  com.sun.java.swing.JLabel();
                                                                                                               com.sun.java.swing.JLabel();
                                                                                                                                                                                     com.sun.java.swing.JLabel()
                                                                                                                                                                                                                                                             com.sun.java.swing.JLabel()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                           // Adjust size of frame according to the insets and menu
                                                                     // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JTextField stepVersionTextField = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JButton backwardButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      com.sun.java.swing.JMenuBar menuBar =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JButton forwardButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JButton homeButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            insets.bottom + size.height + menuBarHeight);
                                                                                                                                                Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               menuBarHeight =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                     frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       int menuBarHeight = 0;
                                                                                                                                                                                                                                                                                           if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                //{ DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (menuBar != null)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    menuBar.getPreferrcdSize().height;
                                                                                                                                                                                                                        super.addNotify();
public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getRootPane().getJMenuBar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       // Used by addNotify
                                                                                                          addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bar
```

homeButton_actionPerformed(event);

com.sun.java.swing.JTextField();

```
stepContentButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * Launch StepContentFrame to view the content of this current step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String s = (String)this.history.elementAt(this.currentIndex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             backwardButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * View the step at the currentIndex-1 postion in the history vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.casesFrame.setStepContent(this, "s-"+s, this.currentPath );
                                              forwardButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                               String s = (String)this.history.elementAt(this.currentIndex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               String s = (String)this.history.elementAt(this.currentIndex);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.currentPath = (String)convertToThePath(s)
                                                                                                                                if (++this.currentIndex >= 0) && (this.currentIndex
                                                                                                                                                                                                                                                          this.currentPath = (String)convertToThePath(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.currentPath = (String)convertToThePath(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (--this.currentIndex >= 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 searchPath(s);
                                                                                                                                                                                                                                                                                                   searchPath(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void
                                                                                                                                                                        this.history.size()) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void
     public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             **/
                                                                                                                             forwardButton_actionPerformed(event);
                                           closeButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            traceButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * View the step at the currentIndex+1 postion in the history vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                homeButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String s = (String)this.history.elementAt(this.currentIndex);
                                                                                                                                                                                                                                                                                                else if (object == stepContentButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     else if (object == decomposeButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if (object == componentButton)
                                                                                                                                                                   else if (object == backwardButton)
                                                                                    else if (object == forwardButton)
else if (object == closeButton)
                                                                                                                                                                                                                                                                                                                                                                                                                              else if (object == traceButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.currentPath = (String)convertToThePath(s);
                                                                                                                                                                                                                                                                                                                                                                                     stepContentButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    decomposeButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    componentButton_actionPerformed(event);
                                                                                                                                                                                                                                                          backwardButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * View the first step in the history vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.currentIndex = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     searchPath(s);
```

* Exit TraceFrame

```
* Convert from a selected step into the complete file path of this step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      StringTokenizer st = new StringTokenizer(sub2,"-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //To convert the string of selected item into the file path
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String before_ = st.nextToken("-");
this.history.insertElementAt(s,currentLocation++);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String _after = st.nextToken("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           String fn = (String)this.fnList.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              thePath= this.pathName+"\\"+sub+"\\";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           char[] ca = (char[])sub2.toCharArray();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                thePath = thePath+before_;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String sub2 = s.substring(fn.length());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String sub = s.substring(0,fn.length());
                                                                                                                                                                                                                                                                                                                                                                     public String convertToThePath(String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for( int i=0; i<this.fnList.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for( int j=0; j<ca.length; j++ ){</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            result = s3.compareTo("-");
                                                                                                                                                                                                                         * make sure this step is valid or not
                                                                                                                                                                                                                                                                                                * @param s : selected step name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        String s3 = ca[j]+"";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         i = this.fnList.size();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if (\text{result} == 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   i=ca.length;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(sub.equals(fn)){
                                                                                                                                                                                                                                                                                                                                                                                                           String the Path = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 int result = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          stepVersion = s;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     output = s;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @param componentsVector: a vector of strings holds all component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Set intitial of this frame with the selected step from JFileChooser
                                                                         closeButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String s = (String)components Vector.elementAt(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * Hold all steps which have been viewed and traced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.currentPath = (String)convertToThePath(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void setInitial(Vector componentsVector){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @param s : the current step name
                                                                                                                                                                                                                                                                                                                                                                            * @param string: the output string
                                                                                                                                                                                                                                                                                                                                                                                                                                                 public void debug(String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void setHistory( String s){
                                                                                                                                                                                                                                                                                                                                    * Short cut to print the output
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if( this.currentPath != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       System.out.println(s);
                                                                                                                                              setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      names of the selected step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 searchPath(s);
                                                                                                                                                                                           dispose();
                                     public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setHistory(s);
```

```
DataInputStream secondIn = new DataInputStream(
                                                                                                                                                                                                                                             DataInputStream primIn = new DataInputStream(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.secondaryTextField.setText(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String s = (String)secondIn.readLine();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FileInputStream fileInputS = new FileInputStream(f);
                                                                                                                                                                                                                                                                                                                                                                                                                           this.primaryTextField.setText(s);
                                                                                                                                                                                                                                                                                                                                                    String s = (String)primIn.readLine();
                                                                                                                                                                                                                                                                                                                                                                                       if( (s!= null) && (!s.equals("")) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (s != null) && (!s.equals("")) ){
                                                                                                       File f = new File(thePath+"\\input.p");
                                                                                                                                                                           FileInputStream fileInputP = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.stepVersionTextField.setText(stepVersion);
    public void searchInputFiles( String thePath ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if( secondIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.outputTextField.setText(output);
                                                                                                                                                                                                                                                                                                                 if( primIn != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     catch( IOException io ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fileInputP.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          f = new File(thePath+"\\input.s");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fileInputS.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               secondIn.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             primIn.close();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        debug("IOException: "+io);
                                                                                                                                          if( f.exists() ){
                                     clearTextFields();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( f.exists() ){
                                                                                                                                                                                                            FileInputStream(f);
                                                                                                                                                                                                                                                                                fileInputP);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fileInputS);
                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Error Message", JOptionPane. ERROR_MESSAGE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * contents to insert in the primary and secondary textfields directly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Search input.p and input.s files of the current step, and get theirs
                                                                                                                                                                                                                                                                                                                                                                                                                  JOptionPane.showMessageDialog(this, s+" is invalid name.",
                                                                 thePath = thePath+"\\"+st.nextToken();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ^{st} @param thePath : the complete path of the selected step
st = new StringTokenizer(_after,".");
                                                                                                                                                                  else if( (result > 0) && (j==ca.length - 1) ){
                              while(st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         searchInputFiles(this.currentPath);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * @param s : the selected step name
                                                                                                                                                                                                        the Path = the Path + sub2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void searchPath( String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if( this.currentPath != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              * Search the path of this step
                                                                                                                                                                                                                                                                                                                                                                                 if( the Path == null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return thePath;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       searchIndex();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return null;
```

```
* Searching aFile and get its content to insert into one of elements of
                                                                                                                                                                  * @param fileType: type of link file, eg. txt.link, word.link, ...
                                                                                                                                                                                                                                                  public void searchFiles(File aFile, String fileType){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else if( fileType.equals(LINK_FILE_NAMES[1]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else if( fileType.equals(LINK_FILE_NAMES[2]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                br = new BufferedReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     br = new BufferedReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         br = new BufferedReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( fileType.equals(LINK_FILE_NAMES[0]) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.storedVector[0].addElement(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.storedVector[1].addElement(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.storedVector[2].addElement(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  while ((item = br.readLine())!= null){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      while ((item = br.readLine())!= null)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                while( (item = br.readLine()) != null ){
                                                                                                                                                                                                                                                                                            File f = new File( aFile, fileType);
                                                                                                                                                                                                                                                                                                                                                                            BufferedReader br = null;
                                                                                                                       * @param aFile: link files
                                                                                                                                                                                                                                                                                                                                                                                                                         String item = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if( br != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              f( br != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if( br != null ){
                                          storedVector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             * @param currentPath: reverse from a selected item into the path of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void setSelectedItem(String currentPath, String selectedItem){
                                       * To find which button (home, forward, or backward) should be set
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * Get selected item from ListDialog and DecomposeListDialog
                                                                                                                          * and it must match with the currentIndex in history vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param selectedItem: a selected component names
                                                                                                                                                                                                                                                                                            if( this.currentIndex == (this.history.size()-1) ){
                                                                                                                                                                                                                                                                                                                                 this.forwardButton.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this.forwardButton.setEnabled( true );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.backwardButton.setEnabled(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.backwardButton.setEnabled( true );
                                                                                                                                                                                                                                                  if( this.currentIndex < this.history.size() ){</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.currentIndex = this.history.size() - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.currentPath = currentPath;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(this.currentIndex > 0){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               setHistory(selectedItem);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  searchPath(currentPath);
                                                                                                                                                                                                          public void searchIndex(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this component
                                                                                                                                                                                                                                                                                                                                                                                                                         else{
                                                                                       enabled
```

```
else if( fileType.equals(LINK_FILE_NAMES[3]) ){
                                                                                                                                                                                                                                                                                                            else if( fileType.equals(LINK_FILE_NAMES[4])){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else if( fileType.equals(LINK_FILE_NAMES[5]) ){
                                       br = new BufferedReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                   br = new BufferedReader( new FileReader(f));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              br = new BufferedReader( new FileReader(f));
                                                                                                                                                     this.storedVector[3].addElement(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.storedVector[4].addElement(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.storedVector[5].addElement(item);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * Create a file with a specific string s if s is valid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     while( (item = br.readLine()) != null ){
                                                                                                                while ((item = br.readLine())!= null)
                                                                                                                                                                                                                                                                                                                                                                                                                               while( (item = br.readLine()) != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @return f: a file with the name is s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             debug("IOException: "+io);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * @param s : a selected string
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      catch( IOException io ){
                                                                         if( br != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if( br != null ){
                                                                                                                                                                                                                                                                                                                                                                                        if( br != null ){
```

```
StringTokenizer st = new StringTokenizer(sub2,"-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   thePath = thePath+"\\"+st.nextToken();
                                                                                                                                      /To convert the string of selected item into the file path
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                st = new StringTokenizer(_after,".");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            String before_ = st.nextToken("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else if( (result > 0) && (j==ca.length - 1) ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String _after = st.nextToken("-");
                                                                                                                                                                                                           String fn = (String)this.fnList.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  while(st.hasMoreTokens()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    char[] ca = (char[])sub2.toCharArray();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               thePath = thePath+before_;
                                                                                                                                                                                                                                                                                                                                                                                                                   String sub2 = s.substring(fn.length());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            File f = new File(this.pathName,thePath);
                                                                                                                                                                                                                                              String sub = s.substring(0,fn.length())
                                                                                                                                                                         [or( int i=0; i<this.fnList.size(); i++ ){</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for( int j=0; j<ca.length; j++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          result = s3.compareTo("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the Path = the Path + sub2;
public File searchFilePath( String s){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String s3 = ca[j] + "";
                                                                                                                                                                                                                                                                                                                                               i = this.fnList.size();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if (\text{result} == 0)
                                                                                                                                                                                                                                                                                                                                                                                  thePath= sub+"\";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           j=ca.length;
                                                                                                                                                                                                                                                                                                               if(sub.equals(fn)){
                                String the Path = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      int result = 0;
                                                                                                     s = "s-"+s;
```

```
* View the content of available decomposed steps of the current step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         decomposeButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                traceButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * View all links and connect these links to their applications
                                    StringTokenizer st = new StringTokenizer(s,",");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tokenizer(v, secondaryTextField.getText()); (new DecomposeListDialog(this, "Decompose",
                                                                                                                                                                                                                                                                                                                                            * View the content of available steps in the ListDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (new ListDialog(this, "Trace Component", v,
                                                                                                                  String the String = (st.nextToken()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tokenizer(v, primaryTextField.getText()); tokenizer(v, secondaryTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           v.addElement(outputTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tokenizer(v, primaryTextField.getText());
  public void tokenizer (Vector v, String s) (
                                                                             while(st.hasMoreTokens()){
                                                                                                                                                        v.addElement(theString);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          public void
                                                                                                                                                                                                                                                                                                                                                                                                                         public void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               v)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0)).setVisible(true);
                                                                                                                                                   * Check a selected string is valid or invalid file name in the current
                                                                                                                                                                                                                                                                                                          * @return a component name which matchs in the current project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       String sub2 = (selectedItem.substring(j+1)).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               boolean isLetter = (new Character(c)).isLetter(c);
                                                                                                                                                                                                                                                                     * @param selectedItem: a selected component name
                                                                                                                                                                                                                                                                                                                                                                                public String checkSelection(String selectedItem){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * @param v : a vector of words without ","
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           char c = (char)sub2.charAt(0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * Tokenize a string with the delimit is ","
                                                                                                                                                                                                                                                                                                                                                                                                                                                              int j = selectedItem.indexOf("-");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * @param s : a string is tokenized
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return selectedItem;
                                                                                                                                                                                                                                                                                                                                                                                                                       if( selectedItem != null ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if( isLetter ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              return selectedItem;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return selectedItem;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               return sub2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else{
return f;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else{
                                                                                                                                                                                             project
```

```
new ReviewComponentContentDialog(selectedItem,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      * VersionControl: Create a version control object and save it in
                                                                                                          or( int k=0; k<storedVector.length; k++ ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * Version Control Object which is used to save in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public class VersionControl implements Serializable (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       * currentLoop: current process of the project
                                                                                                                                                                                                                for( int i=0; i<list.length; i++ ){
    searchFiles(aFile, (String)list[i]);</pre>
                                                                                                                                               storedVector[k] = new Vector();
                                                                                                                                                                                                                                                                                                                                                                  this.storedVector)).setVisible(true);
  if( aFile.isDirectory() ){
                                                                        list = aFile.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            import java.io.Serializable;
                                        i = list.length;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * current.vsn file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    package Cases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           current.vsn file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * Launch ReviewComponentContentDialog after select one component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @param selectedItem: a selected component name from ListDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void setComponentContent(String selectedItem, File f){
                                                                                                        componentButton_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                           (new ListDialog(this, "Component Content", v,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( s.equals(COMPONENT_CONTENT_DIR) ){
                                                                                                                                                                                                                                                                                       tokenizer(v, secondaryTextField.getText());
                                                                                                                                                                                                            v.addElement(outputTextField.getText());
                                                                                                                                                                                                                                                  tokenizer(v, primaryTextField.getText());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * @param f : file with the name is selectedItem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this.stepVersionTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.secondaryTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.primaryTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.outputTextField.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void clearTextFields(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     * Refresh all textfiels in this frame
* of available steps in ListDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for( int j=0; jjj<++){
                                                                                                                                                                              Vector v = new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          String s = (String)list[j];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aFile = new File(f, s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        String[] list = f.list();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              File aFile = null;
                                                                      public void
                                                                                                                                                                                                                                                                                                                                                           1)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   from ListDialog
```

```
* @return currentLoop: current process of this version control object
                                                                                                                   public VersionControl( String currentLoop, String currentStep, String
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public VersionControl( String currentLoop, String currentStep, String
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * @return currentStep: current step of this version control object
                                       * VersionControl constructor with 4 elements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * VersionControl constructor with 3 elements
                                                                                                                                                                                                                                                                                                                                                                        this.currentVersion = currentVersion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.currentVersion = currentVersion;
                                                                                                                                                                                                                                                                                                                                                                                                               this.currentStatus = currentStatus;
                                                                                                                                                                                                         String currentStatus)
                                                                                                                                                                                                                                                                                     this.currentLoop = currentLoop;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      this.currentLoop = currentLoop;
                                                                                                                                                                                                                                                                                                                            this.currentStep = currentStep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.currentStep = currentStep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           public String getCurrentLoop(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public VersionControl() {}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       return this.currentLoop;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          currentVersion )
                                                                                                                                                                  currentVersion,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public VersionControl( String currentLoop, String currentStep, String
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * currentStatus: current status of the current step, eg, Completed,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              String current Version, String current Status)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * currentVersion: current version of the current step
                                                                                                                                                                                                                                                                                                                              * current variant: current variant of the current step
                                                                                                                     * currentStep: current step of the current process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * VersionControl constructor with 5 elements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.currentVersion = currentVersion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.currentVariant = currentVariant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    private String currentVersion = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.currentStatus = currentStatus;
                                                                                                                                                                                                                                                                                                                                                                                                             private String currentVariant = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.currentLoop = currentLoop;
private String currentLoop = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.currentStep = currentStep;
                                                                                                                                                                                                         private String currentStep = null;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         private String currentStatus = "";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       current Variant,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Approved, ...
```

```
// what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                  public class JAboutDialog extends com.sun.java.swing.JDialog
                                                                                                                     A basic implementation of the JDialog class.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setTitle("JFC Application - About");
                                                                                                                                                                                                                                                                                                                                                                                                                          public JAboutDialog(Frame parentFrame)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //{ INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         super(parentFrame);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setModal(true);
                                                                                                                                                                                                                                                                        import com.sun.java.swing.*;
    package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 syntax that matches
                                                                                                                                                                                                                                    import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and initializes
                                                                                                                                                                                        * @return currentVersion: current version of this version control object
                                                                                                                                                                                                                                                                                                                                                                                                                                                              * @return currentVariant: current variant of this version control object
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * @return currentStatus: current status of this version control object
                                                                                                                                                                                                                                                                   public String getCurrentVersion(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public String getCurrentVariant(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public String getCurrentStatus(){
public String getCurrentStep(){
                                                                                                                                                                                                                                                                                                            return this.currentVersion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return this.currentVariant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             return this.currentStatus;
                                           return this.currentStep;
```

okButton.setMnemonic((int)'O');
getContentPane().add(okButton, new
com.symantec.itools.awt.GridBagConstraintsD(2,1,1,1,0.0,0.0,java.awt.Gri
dBagConstraints.CENTER,java.awt.GridBagConstraints.NONE,new
Insets(0,0,10,0),0,0));

getContentPane().setLayout(new GridBagLayout());

okButton.setActionCommand("OK");

okButton.setText("OK");

setSize(248,94); setVisible(false);

okButton.setOpaque(false);

```
public void windowClosing(java.awt.event.WindowEvent
                                                                                                                                                                                                                                     setSize(insets.left + insets.right + d.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       class SymWindow extends java.awt.event.WindowAdapter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Point p = components[i].getLocation();
                                                                                                                                                       // Adjust components according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            p.translate(insets.left, insets.top);
                                                                                                                                                                                                                                                                                                                                                                                         for (int i = 0; i < components.length; <math>i++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         components[i].setLocation(p);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JLabel aboutLabel = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JButton okButton = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           boolean fComponentsAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fComponentsAdjusted = true;
                                                                                                                                                                                                                                                                                                                  Component components[] =
                                                                             if (fComponentsAdjusted)
                                                                                                                                                                                                Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                //{ | DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // Used for addNotify check.
  super.addNotify();
                                                                                                                                                                                                                                                                                                                                                  getContentPane().getComponents();
                                                                                                                            return;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                           insets.bottom + d.height);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bounds.y + (bounds.height - size.height)/2);
aboutLabel.setHorizontalAlignment(com.sun.java.swing.SwingCo
                                                                                                                                                       com.symantec.itools.awt.GridBagConstraintsD(0,0,3,1,1.0,1.0,java.awt.Gri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setLocation(bounds.x + (bounds.width - size.width)/2,
                                                                                                                                                                                                                                                                                                                                                                                                                              SymWindow aSymWindow = new SymWindow();
                                                                                                                                                                                                dBagConstraints.CENTER,java.awt.GridBagConstraints.BOTH,new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rectangle bounds = (getParent()).getBounds();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           okButton.addActionListener(ISymAction);
                                                                         aboutLabel.setText("A JFC Application");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this.addWindowListener(aSymWindow);
                                                                                                                  getContentPane().add(aboutLabel, new
                                                                                                                                                                                                                                                                       aboutLabel.setBounds(0,0,248,59);
                                                                                                                                                                                                                                                                                                                                                                                       // REGISTER LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  addNotify.
```

Dimension d = getSize();

okButton.setBounds(98,59,51,25);

```
ok Button\_action Performed\_Interaction I (java.awt.event. Action Event)
                                                                                                                                                                                                                                                                                             // JAboutDialog Hide the JAboutDialog
                                                                  okButton_actionPerformed_Interaction1(event);
                                                                                                                                                                                                                                                                                                                                                               } catch (Exception e) {System.out.println(e);
                                                                                                                                                                                                                                                                                                                              this.setVisible(false);
      // to do: code goes here.
                                                                                                                                                                                                                                                                  try {
                                                                                                                                                                   void
                                                                                                                                                             void jAboutDialog_windowClosing(java.awt.event.WindowEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public void actionPerformed(java.awt.event.ActionEvent
                                   jAboutDialog_windowClosing(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                        jAboutDialog_windowClosing_Interaction1(java.awt.event.WindowEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 okButton_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                          jAboutDialog_windowClosing_Interaction1(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     void okButton_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       // JAboutDialog Hide the JAboutDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     } catch (Exception e) {System.out.println(e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Object object = event.getSource();
if (object == JAboutDialog.this)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if (object == okButton)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.setVisible(false);
                                                                                                                                                                                                                                                          // to do: code goes here.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            try {
                                                                                                                                                                                                                                                                                                                                                                                                                             void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           event) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        event)
                                                                                                                                                                                                  event)
```

```
JLabel2.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                JLabel2.setFont(new Font("Dialog", Font.BOLD, 15));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JButton_delete_deleteperson.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                     JScrollPane1.getViewport().add(JTextArea1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                ScrollPane 1. setBounds (62,72,264,108);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.JTextArea1.append("Skill ID"+"\t"+"Skill
                                                                                                                                                                                                                                                                                                                                                                getContentPane().add(JScrollPane1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JTextArea1.setBounds(0,0,261,105);
                                                                                                       JLabel2.setText("Required Skills");
                                                                                                                                                                                                                  JLabel2.setBounds(110,24,168,24);
                                                                                                                                                                                                                                                                                         JLabel3.setBounds(74,48,240,24);
                                                                                                                                              getContentPane().add(JLabel2);
                                                                                                                                                                                                                                                       getContentPane().add(JLabel3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //(REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                            JScrollPane1.setOpaque(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.JTextAreal.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public JDialog_jobskill(Vector v)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              jobskill=new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                int n=jobskill.size();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public JDialog_jobskill()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Name"+"\t"+"Skill Level"+"\n");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    jobskill=v;
                                                                         nts.CENTER);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JButton_delete_deleteperson.setBounds(146,204,96,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getContentPane().add(JButton_delete_deleteperson);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JButton_delete_deleteperson.setActionCommand("Delete");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                         public class JDialog_jobskill extends com.sun.java.swing.JDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Button_delete_deleteperson.setText("Exit");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                     public JDialog_jobskill(Frame parent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               setTitle("Required Skills");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //{ INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      setSize(388,250);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            super(parent);
                                                                                                       import com.sun.java.swing.*;
package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    syntax that matches
                                                                       import java.awt.*;
                                                                                                                                           import java.util.*;
                                                                                                                                                                                                                                                                                                                                                              Vector jobskill;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and initializes
```

this.JTextAreal.append("\n");

```
public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                        setSize(insets.left + insets.right + size.width, insets.top +
  // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    com.sun.java.swing.JButton JButton_delete_deleteperson = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                               // Adjust size of frame according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com.sun.java.swing.JScrollPane JScrollPane1 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JTextArea JTextArea! = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       com.sun.java.swing.JLabel JLabel2 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JLabel JLabel3 = new
                                                                         Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                          frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                        Insets insets = getInsets();
                                                                                                                                                                                                                   if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             //{DECLARE_CONTROLS
                                                                                                                                              super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JScrollPane();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JTextArea();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               insets.bottom + size.height);
                                    addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    event)
                                                                                                                                                                                                                                                                                                                            this.JTextAreal.append(number+"\t"+name+"\t"+level+"\n");
                                                                                                                                                                                                                                                                                                                                                                                               System.out.println("job is: "+number+name+level);
                                                                                                         StringTokenizer st = new StringTokenizer(s,":");
                                                                                                                                                                                String number=new String(st.nextToken());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (new JDialog_jobskill()).setVisible(true);
                                    String s=(String) jobskill.elementAt(i);
for(int i=0; i<jobskill.size(); i++){
                                                                                                                                                                                                                   String name=st.nextToken();
                                                                                                                                                                                                                                                       String level=st.nextToken();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public JDialog_jobskill(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     super.setVisible(b);
                                                                                                                                              st.hasMoreTokens();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (b)
```

```
JLabel3.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                             // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JButton_delete_deleteperson.setBounds(111,84,88,24);
                                                                                                                                                                // components to the visual environment. It instantiates
                                                                                                // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JButton_delete_deleteperson.addActionListener(ISymAction);
                                                                                                                                                                                                                                       // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        getContentPane().add(JButton_delete_deleteperson);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JButton_delete_deleteperson.setActionCommand("Delete");
                                                                                                                                                                                                                                                                                                                                                                             // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Button_delete_deleteperson.setText("Exit");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ILabel3.setText("No job scheduled");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JLabel3.setBounds(72,24,167,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(JLabel3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  //{REGISTER_LISTENERS
public JDialog_message(Frame parent)
                                                                                                                                                                                                                                                                                                                                                                                                                //{INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   setSize(311,122);
                                                                                                                                                                                                                                                                                                                                                                                                                                                   setTitle("Error");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      setVisible(false);
                                                                    super(parent);
                                                                                                                                                                                                                                                                            syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nts.CENTER);
                                                                                                                                                                                                                                                                                                                                                  unable to back
                                                                                                                                                                                                        and initializes
                                                                                                                                      when you add
                                                                                                                                                                                                                                                                                                                 JButtonDeleteDeleteperson_actionPerformed(java.awt.event.ActionEvent
                            if (object == JButton_delete_deleteperson)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public class JDialog_message extends com.sun.java.swing.JDialog
                                                                                                       JButtonDeleteDeleteperson_actionPerformed(event);
Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                       // to do: code goes here.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               import com.sun.java.swing.*;
import java.util.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            }//end performence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 public Weight weight;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JFrame_manage p;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public double w;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     import java.awt.*;
                                                                                                                                                                                                                                                                                   void
                                                                                                                                                                                                                                                                                                                                                       event)
```

```
Insets insets = getInsets();
setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JButton JButton_delete_deleteperson = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       {\bf JButtonDeleteDeleteperson\_actionPerformed (java.awt.event.ActionEvent)}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if (object == JButton_delete_deleteperson)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               class SymAction implements java.awt.event.ActionListener
// Adjust size of frame according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JButtonDeleteDeleteperson_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JLabel JLabel3 = new
                                                                                                                                                                                                                    boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.setVisible(false);
                                                                                                                                                                                                                                                                                //{DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.dispose();
                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JButton();
                                                                                                                                                                                       // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JLabel();
                                                                                           insets.bottom + size.height);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (new JDialog_message()).setVisible(true);
                                                                                                                                                                                                             public JDialog_message(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                  public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           super.setVisible(b);
                                                                                 this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   super.addNotify();
                     public JDialog_message()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     return;
                                                                                                                                                                                                                                                                                                      setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void addNotify()
                                                                                                                                                                                                                                                                          this();
                                                                                                                                                                                                                                                                                                                                                                                                                                                             if (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       addNotify.
```

```
JLabel3.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                 JButton_delete_deleteperson.setBounds(111,84,88,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JButton_delete_deleteperson.addActionListener(ISymAction);
                                                                                                 getContentPane().add(JButton_delete_deleteperson);
                                                                JButton_delete_deleteperson.setActionCommand("Delete");
                                                                                                                                                                                                                                                                      J. Label3.setText("No job or stakeholder assigned");
JButton_delete_deleteperson.setText("Exit");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                       JLabel3.setBounds(36,24,239,36);
                                                                                                                                                                                                                                                                                                      getContentPane().add(JLabel3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public JDialog_message1(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                        //{REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public JDialog_message1()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this();
                                                                                                                                                                                                                                   nts.CENTER);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                          public class JDialog_message1 extends com.sun.java.swing.JDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public JDialog_message1(Frame parent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                //{ {INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setTitle("Error");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                setSize(311,122);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       super(parent);
                                                                                                                                                                                                                                                                                                                                           import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public Weight weight;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JFrame_manage p;
                                                                                                                                                                                                                                     package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public double w;
                                                                                                                                                                                                                                                                                                          import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                           import java.util.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and initializes
```

setVisible(false);

```
public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                            JButtonDeleteDeleteperson_actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                   if (object == JButton_delete_deleteperson)
    class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                               JButtonDeleteDeleteperson_actionPerformed(event);
                                                                                                                                                                  Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // to do: code goes here.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.dispose();
                                                                                                                                                                                                                                                                                                                                                                                                                               void
                                                                                                    event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Insets insets = getInsets(); setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                      // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        com.sun.java.swing.JButton JButton_delete_deleteperson = new com.sun.java.swing.JButton();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // Adjust size of frame according to the insets
                                                                                                                                                          (new JDialog_message1()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          com.sun.java.swing.JLabel JLabel3 = new
                                                                                          static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                      Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             //{DECLARE_CONTROLS
super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                      super.addNotify();
                                                                                                                                                                                                                                                         public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    insets.bottom + size.height);
                                                                                                                                                                                                                                                                                                                                                   addNotify.
```

```
bounds.y + (bounds.height - size.height)/2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  setSize(insets.left + insets.right + d.width, insets.top +
                                                                                                                                                                              setLocation(bounds.x + (bounds.width - size.width)/2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Point p = components[i].getLocation();
                                                                                                        Rectangle bounds = (getParent()).getBounds();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          // Adjust components according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                p.translate(insets.left, insets.top);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for (int i = 0; i < components.length; <math>i++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    components[i].setLocation(p);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fComponentsAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Component components[] =
                                                                                                                                          Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if (fComponentsAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insets insets = getInsets();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dimension d = getSize();
                                                                                                                                                                                                                                                                                                                        super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        getContentPane().getComponents();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return;
                                                                                                                                                                                                                                                                                                                                                                                                                                public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    insets.bottom + d.height);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                  // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              getConfentPane().setLayout(new GridBagLayout());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SymWindow aSymWindow = new SymWindow();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                    public class JDialog_weight extends com.sun.java.swing.JDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.addWindowListener(aSymWindow);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        setTitle("JFC Application - About");
                                                                                                                                                                                                                                                                                                                        public JDialog_weight(Frame parentFrame)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // REGISTER LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        // INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                              super(parentFrame);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  setSize(416,162);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setModal(true);
                                                                      import java.awt.*;
import com.sun.java.swing.*;
package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            syntax that matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and initializes
```

```
public void actionPerformed(java.awt.event.ActionEvent
                                  event)
                                                                                                                                                                                                                                                       public void windowClosing(java.awt.event.WindowEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  void jAboutDialog_windowClosing(java.awt.event.WindowEvent
                                                                                                                                                                                                                                                                                                                                                      Object object = event.getSource();
if (object == JDialog_weight.this)
jAboutDialog_windowClosing(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               jAboutDialog_windowClosing_Interaction1(java.awt.event.WindowEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                jAboutDialog_windowClosing_Interaction1(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                            class SymWindow extends java.awt.event.WindowAdapter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         // JAboutDialog Hide the JAboutDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           } catch (Exception e) {System.out.println(e);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.setVisible(false);
                                  boolean fComponentsAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        // to do: code goes here.
                                                                                            //{DECLARE_CONTROLS
// Used for addNotify check.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                try {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                event) {
                                                                                                                                                                                                                                                                                          event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     event)
```

```
JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public JDialog_weit(JFrame_manage p1, Weight weight1, int n1)
                                                                                                                                                                   ILabel1.setFont(new Font("Dialog", Font.BOLD, 16));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JButton_delete_deleteperson.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                   TextField1.setBounds(96,84,192,24);
                                                                                                                                                                                                                                          JLabel2.setText("(from 0.0 to 1.0)");
                                                                                                                                                                                                                                                                                                                                                getContentPane().add(JTextField1);
                                                                                                                                                                                                                                                                                                            Label2.setBounds(144,24,168,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ILabel3.setBounds(96,48,192,24);
                                                                                                                                                                                                      JLabel1.setBounds(36,24,132,24)
                                                                                                                                getContentPane().add(JLabel1);
                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(JLabel3);
                                                                                                                                                                                                                                                                           getContentPane().add(JLabel2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    //{REGISTER_LISTENERS
                                                                                               Labell.setText("Weight: ");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public JDialog_weit(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this((Frame)null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   weight=weightl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   public JDialog_weit()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         b=b1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   n=n1;
                                                                nts.CENTER);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JButton_delete_deleteperson.setBounds(156,132,76,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   getContentPane().add(JButton_delete_deleteperson);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JButton_delete_deleteperson.setActionCommand("Delete");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // parse your Java file into its visual environment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Button_delete_deleteperson.setText("Done");
                                                                                                                                                                                                         public class JDialog_weit extends com.sun.java.swing.JDialog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                          public JDialog_weit(Frame parent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     //{ INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           setTitle("Weight");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             setSize(388,171);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setVisible(false);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              super(parent);
                                                                                                     import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                  public Weight weight;
package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                     JFrame_manage p;
                                                                                                                                                                                                                                                                                                              public double w;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       syntax that matches
                                                                                                                                    import java.util.*;
                                                                    import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and initializes
```

```
public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JButtonDeleteDeleteperson_actionPerformed(java.awt.event.ActionEvent
                                     com.sun.java.swing.JButton JButton_delete_deleteperson = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Object object = event.getSource();
if (object == JButton_delete_deleteperson)
                                                                                                                                                                                                                                                                                                                                                                                                                                                            class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JButtonDeleteDeleteperson_actionPerformed(event);
                                                                                                                                                                                                                                   com.sun.java.swing.JTextField JTextField1 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Double(((String)this.JTextField1.getText()).trim());
                                                                                                     com.sun.java.swing.JLabel JLabel1 = new
                                                                                                                                                                     com.sun.java.swing.JLabel JLabel2 = new
                                                                                                                                                                                                                                                                                                   com.sun.java.swing.JLabel JLabel3 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // to do: code goes here.
      //{DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    w=d.doubleValue();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Double d=new
                                                                                                                                                                                                                                                                  com.sun.java.swing.JTextField()
                                                                      com.sun.java.swing.JButton();
                                                                                                                                      com.sun.java.swing.JLabel();
                                                                                                                                                                                                  com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              // Adjust size of frame according to the insets
                                                                                                                                                                                                                                                                                                                                                                                                                       (new JDialog_weit()).setVisible(true);
                                                                                                                                                                                                                        setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                      static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insets insets = getInsets();
                                                                                                                              public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (frameSizeAdjusted)
                                                                                                                                                                                                                                                            super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    super.addNotify();
                              setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              // Used by addNotify
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               insets.bottom + size.height);
this();
                                                                                                                                                                                            if (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                addNotify.
```

```
// what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      // the components. To modify the code, only use code
                                                                                                                                                                                     public class JFrame_assignjob extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                Vector personskill_queue,jobskill_queue;
                                                                                                                                                                                                                                                                                                                   int index, grade, step, n, year, month, date;
                                                                                                                                                                                                                                       Vector person_queue,job_queue,work_queue;
                                                                                                                                                                                                                                                                                                                                                                                                                       Vector p_q, pk_q, w_q, job_pool;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       result=new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public JFrame_assignjob()
                                                                                                          import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                CasesFrame parent;
                                                                                                                                                                                                                                                                                                                                                                                              StepContent job;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    step=1;
                                                                                                                                                                                                                                                                                                                                              String jobname;
                                                                                                                                                                                                                                                                                          Vector result;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             n=0;
package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 syntax that matches
                                                                               import java.awt.*;
                                                                                                                                 import java.util. *;
                                                      import Cases.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and initializes
                            i=Integer.parseInt(((String)this.JTextField1.getText()).trim());
                                                                                                                                                                                                                                                                                                                                                                                                                                                this.JLabel3.setText("Invalid Value");
                                                     if(0.0 \le w&w \le 1.0)
                                                                                                                                                                                                                                                                                                                  this.setVisible(false);
                                                                                                                                                                                                                                   p.sortbyD_S(); p.datavalu();
                                                                                 weight.put_w(w);
                                                                                                                                p.sortbyD_E();
                                                                                                                                                          p.datavalu();
                                                                                                          if(n==1){
                                                                                                                                                                                                              else{
                                                                                                                                                                                                                                                                                                                                                                                                                         else{
                                                                                                                                                                                                                                                                                                                                                                     this.dispose();
                                                                                                                                                                                                                                                                                                                                                dispose();
```

// parse your Java file into its visual environment.

unable to back

//{INIT_CONTROLS

setTitle("Job Assignment");
getContentPane().setLayout(null);

setSize(492,532);

setVisible(false);

 $\label{lem:comparison} JLabell.set Horizontal Alignment (com. sun. java. swing. Swing. Constants. CENTER);$

Label1.setText("Job Assignment");
getContentPane().add(JLabel1);
JLabel1.setFont(new Font("Dialog", Font.BOLD, 16));
JLabel1.setBounds(150,12,192,24);

JButton1.setHorizontalAlignment(com.sun.java.swing.SwingConstants.LEFT);

JButton1.setText(" 1. Filter by Security Level"); JButton1.setActionCommand("by priority"); getContentPane().add(JButton1); JButton1.setBounds(168,264,276,24); JButton2.setHorizontalAlignment(com.sun.java.swing.SwingConstants.LEFT);

JButton2.setText(" 2. Filter by Required Skills");
JButton2.setActionCommand("by skills");
getContentPane().add(JButton2);
JButton2.setBounds(168,300,276,24);

JButton3.setHorizontalAlignment(com.sun.java.swing.SwingConstants.LEFT);

JButton3.setText(" 3. Assign this Job");
JButton3.setActionCommand("assign the job");
getContentPane().add(JButton3);
JButton3.setBounds(168,336,276,24);
JButton4.setText("Exit");
JButton4.setActionCommand("Save and Exit");
getContentPane().add(JButton4);
JButton4.setBounds(72,492,372,24);
JScrollPane 1.setOpaque(true);
getContentPane().add(JScrollPane1);
JScrollPane 1.setBounds(72,372,372,108);
JScrollPane 1.getViewport().add(JTextArea2);

SymAction ISymAction = new SymAction(); (Button4.addActionListener(ISymAction); (Button1.addActionListener(ISymAction); Button5.setActionCommand("Job skill"); TextField1.setBounds(168,180,276,28); TextField2.setBounds(168,144,276,28); TextField3.setBounds(168,108,276,28); Label9.setText("Estimated Duration"); TextField4.setBounds(168,72,276,28); Button5.setBounds(168,216,276,24); TextArea2.setBounds(0,0,369,105); getContentPane().add(JTextField2); getContentPane().add(JTextField4); Label3.setText("Required Skills"); JButton5.setText("Required Skills") getContentPane().add(JTextField3); Label2.setBounds(24,108,132,24); getContentPane().add(JTextField1); Label9.setBounds(24,180,120,24); Label3.setBounds(24,216,120,24); Label8.setBounds(24,144,108,28); ILabel2.setText("Security Level"); Label7.setBounds(24,72,84,28); getContentPane().add(JButton5) getContentPane().add(JLabel8); getContentPane().add(JLabel3); getContentPane().add(JLabel2); getContentPane().add(JLabel7); getContentPane().add(JLabel9) //{REGISTER_LISTENERS Label8.setText("Deadline"); Label7.setText("Job ID"); //{INIT_MENUS

250

```
// Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // Adjust size of frame according to the insets and menu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (new JFrame_assignjob()).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JMenuBar menuBar ==
      public JFrame_assignjob(String sTitle)
                                                                                                                                                                                                                                                                                                                                                            setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Insets insets = getInsets();
                                                                                                                                                                                                                                                      public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                             super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   super.addNotify();
                                                                                                       setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                return;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             getRootPane().getJMenuBar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this.JTextField1.setText(sk1.valueOf(job.getDuration()));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        person_queue=person_queue1; job_queue=job_queue1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   //System.out.println("in assignment constructor person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this.JTextField3.setText(sk1.valueOf(job.getSecurityLevel()));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.job=(StepContent) job_queue.firstElement();
                                                                                                                                                                                                               //SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.JTextField4.setText(job.getStepName());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      public JFrame_assignjob(CasesFrame parent1, Vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.JTextField2.setText(job.getDeadline());
                                                                                                                                                                                                                                                      //JButton3.addActionListener(ISymAction);
JButton2.addActionListener(ISymAction);
                                    JButton3.addActionListener(ISymAction);
                                                                      JButton5.addActionListener(ISymAction);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          person_queue1, Vector job_queue1, Vector job_pool1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           String name=job.getStepName();
                                                                                                                                                                              //{REGISTER_LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String sk1=new String();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ob_pool=job_pool1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.jobname=name;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    parent=parent1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       size:"+person_queue.size());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //cleanperson_job();
```

int menuBarHeight = 0;

if (menuBar != null)	com.sun.java.swing.JTextField JTextField3 = new
menuBarHeight =	com.sun.java.swing.JTextField();
menuBar.getPreferredSize().height;	com.sun.java.swing.JTextField JTextField4 = new
setSize(insets.left + insets.right + size.width, insets.top +	com.sun.java.swing.JTextField();
insets.bottom + size.height + menuBarHeight);	com.sun.java.swing.JLabel JLabel3 = new
	com.sun.java.swing.JLabel(); com.sun.java.swing.JButton JButton5 = new
// Used by addNotify	com.sun.java.swing.JButton();
boolean frameSizeAdjusted = false;	{{//
//{DECLARE_CONTROLS	//{DECLARE_MENUS
com.sun.java.swing.JLabel JLabel1 = new	
com.sun.java.swing.JLabel();	
com.sun.java.swing.JButton JButton1 = new	
com.sun.java.swing.JButton();	class SymAction implements java.awt.event.ActionListener
com.sun.java.swing.JButton JButton2 = new	
com.sun.java.swing.JButton();	public void actionPerformed(java.awt.event.ActionEvent
com.sun.java.swing.JButton JButton3 = new	event)
com.sun.java.swing.JButton();	
com.sun.java.swing.JButton JButton4 = new	Object object = event.getSource();
com.sun.java.swing.JButton();	if (object == JButton4)
com.sun.java.swing.JScrollPane JScrollPane1 = new	JButton4 actionPerformed(event);
com.sun.java.swing.JScrollPane();	else if (object == JButton1)
com.sun.java.swing.JTextArea JTextArea2 = new	JButton1_actionPerformed(event);
com.sun.java.swing.JTextArea();	else if (object == JButton2)
com.sun.java.swing.JLabel JLabel2 = new	JButton2_actionPerformed(event);
com.sun.java.swing.JLabel();	else if (object == JButton3)
com.sun.java.swing.JLabel JLabel7 = new	JButton3_actionPerformed(event);
com.sun.java.swing.JLabel();	else if (object == JButton5)
com.sun.java.swing.JLabel JLabel8 = new	JButton5_actionPerformed(event);
com.sun.java.swing.JLabel();	
com.sun.java.swing.JLabel JLabel9 = new	
com.sun.java.swing.JLabel();	
com.sun.java.swing.JTextField JTextField1 = new	void JButton4_actionPerformed(java.awt.event.ActionEvent event)
com.sun.java.swing.JTextField();	
com.sun.java.swing.JTextField JTextField2 = new	// to do: code goes here.
com.sun.java.swing.JTextField();	this setVisible (false):

```
if(month.equals("December")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(month.equals("November")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(month.equals("September")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(month.equals("October")){
                                                                                                                                                                                                                                                                                                                                                                       if(month.equals("August")){
                                                                                                                                                                                                                                                                              if(month.equals("July")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return 12;
                                                                                                                                                                                      if(month.equals("June")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               return 11;
                                                                                          if(month.equals("May")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       return 10;
if(month.equals("April")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 else{
                                                                                                                                                                                                                                                                                                                                                                                                return 8;
                                                                                                                                                                                                                                                                                                    return 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else{
                                                                                                                                                                                                             return 6;
                                                                                                                return 5;
                                                                                                                                                                                                                                                                                                                                                  elsé{
                                                                                                                                                                                                                                                      else{
                       return 4;
                                                                                                                                                                else{
                                                                    else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                System.out.println("in filterbysecurity: p_q size is "+p_q.size());
                                                                                                                                                                                   Personnel person=(Personnel) person_queue.elementAt(i);
                                                                                                             int security=job.getSecurityLevel();
System.out.println("job security is "+security);
                                                                                                                                                                                                          System.out.println("the person security is
                                                                                                                                                                                                                                                     if(security<=person.getSecurityLevel()){
                                                                                                                                                           for(int i=0; i<person_queue.size(); i++){
                                                                                                                                                                                                                                                                            System.out.println("the security is
                                                                                                                                                                                                                                                                                                                         +"persion id is "+person.getID());
                                                                  // p_q=(Vector) person_queue.clone();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(month.equals("March")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(month.equals("February")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         int getmonthbyint(String month){
                                                                                                                                                                                                                                                                                                                                                                      p_q.addElement(person);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(month.equals("January")){
                 void Filterbysecurity(){
                                                                                       p_q=new Vector();
                                                                                                                                                                                                                             "+person.getSecurityLevel());
                                                                                                                                                                                                                                                                                                   "+person.getSecurityLevel()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                return 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   return 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                          //end for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //end Filter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else{
```

String s="December"; return s;

if(month==12){

else{

String s="November"; return s;

if(month==11)

else{

String s="October";

return s;

if(month==10)

else{

String s="September";

return s;

if(month==9){

else{

String s="August";

return s;

if(month==8)

else{

String s="July";

return s;

if(month==7)

else{

String s="June";

return s;

if(month==6){

else{

return s;

```
String name2=((String)st2.nextToken()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              System.out.println("take each the person's skill");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String s4=((String)(st2.nextToken())).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           System.out.println("the job's number, name,
                                                                                                                                                                                                                                                                                                                                                                                                               String name1=((String)st.nextToken()).trim();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(number1==number2&&level1>=level2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for(int k=0; k<this.job.getSkill().size(); k++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  System.out.println(number2+" "+name2+"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          System.out.println(number1+name1+level1);
                                                                                                                                                                                                                                                                                                  StringTokenizer st = new StringTokenizer(s1,":");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 System.out.println("the skill number, name,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        System.out.println("the job skill is "+s3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           int number2=Integer.parseInt(s4.trim());
                                                                                                                                                                                                                                                                                                                                                                           int number1=Integer.parseInt(s2.trim());
                                                                           Personnel p=(Personnel) p_q.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     evel2=Integer.parseInt(((String)st2.nextToken()).trim());
                                                                                                                                                                                                                                                                                                                                      String s2=new String(st.nextToken());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        level1=Integer.parseInt(((String)st.nextToken()).trim());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              StringTokenizer st2 = new
                                                                                                                                                                                                                           String's1=(String)v.elementAt(j);
for(int i=0; i<this.p_q.size(); i++){
                                                                                                                 Vector v=(Vector) p.getSkill();
                                                                                                                                                                                     for(int j=0; j<v.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     s3=(String)this.job.getSkill().elementAt(k);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     grade++;
                                          this.grade=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 StringTokenizer(s3,":");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "+level2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            level:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       level:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 StringTokenizer st1 = new StringTokenizer(s," ");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this.date=Integer.parseInt(st1.nextToken());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            StringTokenizer st = new StringTokenizer(date,",");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      String s2=new String(st.nextToken());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String s=new String(st.nextToken());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //this.year=Integer.parseInt(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this.year=0; this.month=0; this.date=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this.month=getmonthbyint(s1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        String s1=st1.nextToken();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          System.out.println("in getdate");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     st1.hasMoreTokens();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           void getdate(String date){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 st.hasMoreTokens();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               void Filterbyskills(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               catch( Exception e){}
                                                                                                                                                                                                                                                                                                                                                                           return null;
```

```
this.JTextArea2.append("Stakeholder ID"+"\t"+"Security
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this.JTextArea2.append(sk.valueOf(p.getID()+"\t"));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.JTextArea2.append(sk.valueOf(p.getSecurityLevel()+"\n"));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Personnel p=(Personnel) p_q.elementAt(i);
                                                                                                                                      Personnel p=(Personnel) p_q.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                System.out.println("p_q siz is "+p_q.size());
                                                                                                                                                             int id1=Integer.parseInt(p.getID());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for(int i=0; i<p_q.size(); i++){
                                                                                                       for(int j=0; j<p_q.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            String sk=new String();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.JTextArea2.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.JTextArea2.setText("");
                                                      Personnel seachbyid(int id){
                                                                                                                                                                                         if(id==id1){
                                                                                                                                                                                                                  return p;
                                                                                                                                                                                                                                                                                                                        catch( Exception e){}
                                                                                                                                                                                                                                                                                                                                                                                                                                 void display1(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           void display2(){
                                                                                                                                                                                                                                                                                                                                                       return null;
                                                                                                                                                                                                                                                                                                                                                                             //end seach
   }//end sort
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Level"+"\n");
System.out.println("number1,
                                                  System.out.println("number2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Result r1=(Result) result.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(min.get_grade()<r1.get_grade()){
                                                                                                                                                                                                               int id=Integer.parseInt(p.getID());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for(int j=i+1; j<result.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         min=(Result) result.elementAt(i);
                                                                                                                                                                                                                                   Result r=new Result(id,grade);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              result.setElementAt(tmp, j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for(int i=0; i<re>iresult.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      result.setElementAt(min, i);
                                                                                                                               }//end for(k)
                                                                                                                                                                                                                                                                result.addElement(r);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tmp=min;
                                                                                                                                                                                Wend for(j)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Result min, tmp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          min=r1;
                      level1"+number1+level1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         //end if()
                                                                                                                                                                                                                                                                                                                   }//end for(i)
                                                                                                                                                                                                                                                                                                                                                                                                 catch( Exception e) { }
                                                                          level2"+number2+level2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   //end for(j)
                                                                                                                                                                                                                                                                                                                                                  sortresult();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 void sortresult(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \/end for(//i)
```

```
void JButton3_actionPerformed(java.awt.event.ActionEvent event)
                                                                      void JButton1_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     void JButton2_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         System.out.println(year+" "+ month+" "+ date);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      System.out.println("year, month, date are:");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             symantec.itools.awt.util.Calendar c=new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    System.out.println("today is "+s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // to do: code goes here.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // to do: code goes here.
                                                                                                                                     // to do: code goes here.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(step==3||step==4){
                                                                                                                                                                                                                                          Filterbysecurity();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                symantec.itools.awt.util.Calendar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Filterbyskills();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String s=c.getDate();
                                                                                                                                                                                                                                                                             display I();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          display2();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if(step==2){
                                                                                                                                                                           if(step==1){
                                                                                                                                                                                                                  step++;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             step++;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getdate(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this.JTextArca2.append(p.getID()+"\\"+step2.getStepName()+"\\\"+step2.get
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      step1.getStepName()+"\t"+step1.getStartTime()+"\t"+step1.getDuration()
                                                                                                                                                                        this.JTextArea2.append(s.valueOf(r.get_id()+"\t")); this.JTextArea2.append(s.valueOf(r.get_grade()+"\t"));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               +"\t"+"Estimated Duration"+"\n");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this.JTextArea2.append("Stakeholder ID"+"\t"+"Job ID"+"\t"+"Earliest Start Time"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         StepContent step1=(StepContent) v.elementAt(0);
                                                                                                                                       Result r=(Result) result.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   this.JTextArea2.append(p.getID()+"\t"+
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           step2=(StepContent) v.elementAt(1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               StartTime()+"\t"+step2.getDuration()+"\n");
                                                                                                       for(int i=0; i<result.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Personnel p=seachbyid(pid);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this.JTextArea2.setText("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this.JTextArea2.append("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vector v=p.getMajorJobs();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       StepContent step2=null;
                                     String s=new String();
                                                                                                                                                                                                                                                                                                                                                                                                                   void display3(int pid){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(v.size()==2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(step2!=null){
of Required Skills"+"\n");
```

this.JTextArea2.append("Stakeholder ID"+"\t"+"Match Number

```
((StepContent)this.job).setRealStartTime(c.getDate());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ((StepContent)this.job).setRealStartTime(c.getDate());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               job_queue.removeElement(this.job);
                                                                                                                                         System.out.println("clear person");
Personnel p=seachbyid(personid);
                                                                                                                                                                                                                                                                                                                                                                       setjob_pool(jobname, this.job);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            setperson_queue(personid, p);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setperson_queue(personid, p);
                         Vector v1=p.getMajorJobs();
                                                      Vector v2=p.getMinorJobs();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //set the person's minor job
                                                                                                                                                                                                                                                                                                                                                                                                   //set the person's morja job
                                                                                                                                                                                                                                                       job.setStatus("Assigned");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v2.addElement(this.job);
                                                                                                                                                                                                                                                                                                                                                                                                                                                     v1.addElement(this.job);
                                                                                                                                                                                                                                                                                  //set the job's starttime
                                                                                                            String s=c.getDate();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    p.setMajorJobs(v1);
                                                                                                                                                                                                                            //set the job's status
                                                                                                                                                                                                                                                                                                              job.setStartTime(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          o.setMinorJobs(v2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       display3(personid);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   //save the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //save the person
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    //remove the job
                                                                                                                                                                                               if(v1.size()<2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               //set Mina job
                                                                                                                                                                                                                                                                                                                                            //save job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          //end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else{
                                                                                                                                                                System.out.println("job jobname is "+jobname);
                                                                                                                                                                                                                                                                                                                                     System.out.println("before save the step status and
                                                                                                                                                                                             System.out.println("befor save job_pool size=
                                                                                                                                                                                                                                                                                                                                                                                                                        parent.savePersonnelVector(person_queue);
                                                                                                                                                                                                                                                                                                                                                                                                                                                     parent.saveStepContentVector(job_pool);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               personid=((Result) result.elementAt(i)).get_id();
                                                                                                                                                                                                                                                  for(int i=0; i<job_pool.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               symantec.itools.awt.util.Calendar c=new
                                                                                                                                                                                                                                                                                                                                                             name "+step.getStatus()+" "+step.getStepName());
                                                                                                            num=assing_Performed();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  jobname=this.job.getStepName();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     duration=this.job.getDuration();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for(int i=0; i<result.size(); i++){
                                                                                                                                                                                                                                                                                                              step=(StepContent)job_pool.elementAt(i);
                                                                                                                                                                                                                                                                                 StepContent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            symantec.itools.awt.util.Calendar();
                                                                                                                                       if(num==1){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       int duration, personid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          int assing_Performed(){
                         int num=0;
                                                  if(n==0)
 step++;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String jobname;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Result r;
                                                                                                                                                                                                                         "+job_pool.size());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                }//end
```

```
void JButton5_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                          (new JDialog_jobskill(v)).setVisible(true);
                                                                                                                                                                                        parent.savePersonnelVector(person_queue);
                                                                                            int personid=Integer.parseInt(p.getID());
                                                                                                                                                                                                                                                                                                                                                                                                        Vector v=(Vector) job.getSkill();
                                                                                                                        setperson_queue(personid, p);
                                                                                                                                                                                                                                                                                                                                                                            // to do: code goes here.
                                    v2.removeAllElements();
                                                              p.setMinorJobs(v2);
p.setMajorJobs(v1);
                                                                                                                                                                                                                                                  catch( Exception e){}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                StepContent step=(StepContent) job_pool.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Personnel p=(Personnel) person_queue.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                              Personnel p=(Personnel) person_queue.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void setjob_pool(String jobname, StepContent step1){
                                                                                                                                                                                                                                                                                    void setperson_queue(int personid, Personnel p1){
                                                                                                                                                                                                                                                                                                                                                                                                              if(personid==Integer.parseInt(p.getID())){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(jobname.equals(step.getStepName())){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for(int i=0; iiperson_queue.size(); i++){
                                                                                                                                                                                                                                                                                                                                              for(int i=0; iiiperson_queue.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                            person_queue.setElementAt(p1, i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          job_pool.setElementAt(step1, i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for(int i=0; i<job_pool.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vector v1=p.getMajorJobs();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Vector v2=p.getMinorJobs();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      void cleanperson_job(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //end for_loop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      catch(Exception e){}
    return 1;
                                                                                                                                                                                                                      //end assing
                                                                                            }//end for
                                                                                                                                                          return 0;
```

v1.removeAllElements();

```
JLabel1.setHorizontalAlignment(com.sun.java.swing.SwingConsta
      // what Visual Cafe can generate, or Visual Cafe may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Label1.setFont(new Font("Dialog", Font.BOLD, 16));
                                                                        // parse your Java file into its visual environment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Button5.setActionCommand("Save and Exit");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SymAction ISymAction = new SymAction();
                                                                                                                                                                                                                                                                                                                                                                                   JLabel1.setText("Job Scheduling Policy");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        !ScrollPane2.getViewport().add(JTable1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ScrollPane2.setBounds(60,132,480,216);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IComboBox1.setBounds(144,72,396,36);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getContentPane().add(JComboBox1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Button5.setBounds(256,372,92,24);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getContentPane().add(JScrollPane2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ILabel1.setBounds(190,24,216,36);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Label6.setBounds(24,72,108,24);
                                                                                                                                                                                getContentPane().setLayout(null);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Table 1.setBounds(0,0,477,213);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                getContentPane().add(JButton5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getContentPane().add(JLabel6);
                                                                                                                                                                                                                                                                                                                                                                                                                          getContentPane().add(JLabel1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // REGISTER LISTENERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ScrollPane2.setOpaque(true);
                                                                                                                                           setTitle("Job Scheduling");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               !Button5.setText("Exit");
                                                                                                        //{ INIT_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //{INIT_MENUS
                                                                                                                                                                                                               setSize(596,415);
                                                                                                                                                                                                                                                  setVisible(false);
                                         unable to back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // components to the visual environment. It instantiates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // This code is automatically generated by Visual Cafe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // the components. To modify the code, only use code
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public class JFrame_manage extends com.sun.java.swing.JFrame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vector job_pool, job_queue1,job_queue2, job_queue;
                                                                                                                                                                                                                                                                                                                                                                                                                      .mport com.symantec.itools.swing.JButtonGroupPanel;
                                                                                                                                                                                                                                                                                                                                                  import com.sun.java.swing.table.DefaultTableModel;
                                                                                                        A basic implementation of the JFrame class.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            System.out.println("in manage2");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ob_queue1=new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   job_queue2=new Vector();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 weight=new Weight();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public JFrame_manage()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //initai weight value
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              int year=0, month=0, date=0;
                                                                                                                                                                                                                                                                                                                    mport com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             //TableModel mytable;
                                                                                                                                                                                                                                                                                                                                                                                     mport java.lang.Double;
package JobSchedule;
                                                                                                                                                                                                                                              mport java.util.Date;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   syntax that matches
                                                                                                                                                                                                                                                                                 import java.awt. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Weight weight;
                                                                                                                                                                                                             import java.util. *;
                                                                                                                                                                              import Cases. *;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                when you add
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and initializes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            double w;
```

```
setSize(insets.left + insets.right + size.width, insets.top +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 // Record the size of the window prior to calling parents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                // Adjust size of frame according to the insets and menu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     com.sun.java.swing.JMenuBar menuBar =
                                                                                                                                                                                                                                                                                                                                                                  (new JFrame_manage()).setVisible(true);
                                                                                                                                                                     setLocation(50, 50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 insets.bottom + size.height + menuBarHeight);
                                                                                                                                                                                                                                                                                                   static public void main(String args[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dimension size = getSize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 menuBarHeight =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    frameSizeAdjusted = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insets insets = getInsets();
                                                                   public void setVisible(boolean b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int menuBarHeight = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if (frameSizeAdjusted)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (menuBar != null)
                                                                                                                                                                                                 super.setVisible(b);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    super.addNotify();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                menuBar.getPreferredSize().height;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void addNotify()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     getRootPane().getJMenuBar();
                                                                                                                                    if (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   addNotify.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bar
                                                                                                                                                                                                                                                                                                                                                                IComboBox1.addItem("Minimum Estimated Duration
                                                                                                                                                                                                                                                                                                                                                                                                                                   JComboBox1.addItem("Minimum Earliest Start Time
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JComboBox1.addItem("Min_D*w + Min_E*(1-w)");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JComboBox1.addItem("Min_D*w + Min_S*(1-w)");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  System.out.println("job_queue="+job_queue.size());
                                                                                                                                                                                                                                                                                                   JComboBox1.addItem("Minimum Deadline First
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JComboBox1.addItem("Minimum Laxity First
                                                                                                                                  JScrollPane2.addFocusListener(aSymFocus);
                                                                                                                                                                                                                                                                  JComboBox1.addItem("High Priority First");
                                 SymFocus aSymFocus = new SymFocus();
JButton5.addActionListener(ISymAction);
                                                                                                  JComboBox1.addItemListener(ISymItem);
                                                                                                                                                                                                                                  JComboBox1.addItem("Select a Policy");
                                                                                                                                                                 Table LaddFocusListener(aSymFocus);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               System.out.println("this is in manage");
                                                                   SymItem ISymItem = new SymItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  public JFrame_manage(Vector job_queue1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               public JFrame_manage(String sTitle)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  job_queue=job_queue1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    setTitle(sTitle);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      datavalu();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //display();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this();
                                                                                                                                                                                                                                                                                                                                                                                                    First (Min_E)");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   First (Min_S)");
                                                                                                                                                                                                                                                                                                                                   (Min_D)");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Min_L)");
```

```
StepContent step=(StepContent)job_queue.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mymodel=new DefaultTableModel(datavalue, header);
                                                                                                                                                                                               datavalue[i][3]=s.valueOf(step.getDuration());
                                                                                                                                datavalue[i][1]=s.valueOf(step.getPriority());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   laxity=((y1-y2)*360+(m1-m2)*30+(d1-d2))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   y1=this.year; m1=this.month; d1=this.date;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   y2=this.year; m2=this.month; d2=this.date;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     String starttime=step.getStartTime();
                                                                                                  datavalue[i][0]=step.getStepName()
                                                                                                                                                                                                                                   datavalue[i][4]=step.getStartTime();
                                                                                                                                                                                                                                                                                                                                                                                                 String deadline=step.getDeadline();
                                                                                                                                                               datavalue[i][2]=step.getDeadline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         System.out.println("after creat JTable");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  datavalue[i][5]=s.valueOf(laxity);
                                                                                                                                                                                                                                                                                                                                 int laxity, y1,y2,m1,m2,d1,d2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       int getmonthbystring(String month){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JTable1.setModel(mymodel);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    y2=0; m2=0; d2=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                y1=0; m1=0; d1=0;
                                 String s=new String();
for(int i=0; i<size; i++){
                                                                                                                                                                                                                                                                                                //caculation laxity
                                                                                                                                                                                                                                                                                                                                                                                                                                    getdate(deadline);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getdate(starttime);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       step.getDuration();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JComboBox JComboBox1 = new
                                                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JScrollPane JScrollPane2 = new
                                                                                                                                                                                                                          com.sun.java.swing.JButton JButton5 = new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String datavalue[][]=new String[size][6];
                                                                                                                                                                                                                                                                                                                                                                                                                              com.sun.java.swing.JTable JTable1 = new
                                                                                                                                                           com.sun.java.swing.JLabel JLabel1 = new
                                                                                                                                                                                                                                                                                              com.sun.java.swing.JLabel JLabel6 = new
                                                             boolean frameSizeAdjusted = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    header[3]="Estimated Duration"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   neader[4]="Earliest Starttime";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DefaultTableModel mymodel;
                                                                                                                          //{DECLARE_CONTROLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   int size=job_queue.size();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  String header[]=new String[6];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           com.sun.java.swing.JComboBox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //{ DECLARE_MENUS
                                                                                                                                                                                                                                                                                                                                                                                            com.sun.java.swing.JScrollPane();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    header[2]="Deadline"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     header[1]="Priority";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   neader[0]="Job ID"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   neader[5]="Laxity";
                                                                                                                                                                                                                                                            com.sun.java.swing.JButton();
                           // Used by addNotify
                                                                                                                                                                                           com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.sun.java.swing.JTable();
                                                                                                                                                                                                                                                                                                                             com.sun.java.swing.JLabel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void datavalu(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //creat Jtable
```

```
if(month.equals("December")){
                                           if(month.equals("November")){
                                                                                                                       return 12;
                                                          return 11;
return 10;
                                                                                         else{
                                                                                                                                                                                                                                                                                                                                                                    String getmonthbyint(int month){ if(month==1){
                             else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         String s="March";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            String s="February"; return s;
                                                                                                                                                                                                                                                                                                                                                                                                  String s="January"; return s;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else{
if(month==3){
                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(month==2){
                                                                                                                                                                                                                                                                                                        //end if-else
                                                                                                                                                                                                                                                                                                                        return 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(month.equals("September")){
    return 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(month.equals("October")){
                                                                                                                                                                                                                                                                                                                                                                                                                                if(month.equals("August")){
    return 8;
                                                                                                                                                                                                                                                                                                                                                                     if(month.equals("July")){
    return 7;
                                                                                                                                                                                                                                                                                                         if(month.equals("June")){
    return 6;
                                                                                                                                                                                                                                             if(month.equals("May")){
    return 5;
                                                                                                                                                                                   if(month.equals("April")){
                                                                                                                      if(month.equals("March")){
    return 3;
                                                           if(month.equals("February")){
if(month.equals("January")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else{
                                                                                                                                                                                                                                                                                                                                                                                                                   else{
                                                                                                                                                                                                                                                                                                                                                        else{
                                                                                                                                                                                                   return 4;
                                                                                                                                                                                                                                                                                          else{
                                                                          return 2;
                                                                                                                                                                                                                               else{
                                                                                                                                                                    else{
                return 1;
                                                                                                        else{
                                              else{
```

```
max=(StepContent) job_queue.elementAt(i);
for(int j=i+1; j<job_queue.size(); j++){
    StepContent step1=(StepContent) job_queue.elementAt(j);
    if(max.getPriority()<step1.getPriority()){</pre>
                                                                                                                           String s="December";
                                   String s="November";
                                                                                                         if(month==12){
                   if(month==11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          job_queue.setElementAt(tmp, j);
//end if()
                                                                                                                                             return s;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for(int i=0; i<job_queue.size(); i++){
                                                       return s;
                                                                                          else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                StepContent max, tmp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           max=step1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                void sortbypriority(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tmp=max;
                                                                                                                                                                                                                                                                                                                                                                          return null;
                                                                                                                                                                                                                                                                                                                                                                                                              }//end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        String s="October";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   String s="September";
                                                                                                                                                                                                                                                                                                                                                                                                                             String s="August";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(month == 10){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(month==9){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return s;
                                                                                                                                                                                                                                                                                                                                    String s="July";
                                                                                                                                                                                                                                                                                                                                                                                                            if(month==8){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     return s;
                                                                                                                                                                                                                                               String s="June";
                                                                                                                                                                                                                                                                                                                   if(month==7)
                                                                                                                                                          String s="May";
                                                                                                                                                                                                                                                                                                                                                                                                                                                return s;
                                                                                                                                                                                                                                                                                                                                                     return s;
                                                                    String s="April";
                                                                                                                                                                                                                               if(month==6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else{
                                                                                                                                        if(month==5){
                                                                                                                                                                                                                                                                 return s;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 else{
                                                  if(month==4){
                                                                                                                                                                            return s;
                                                                                       return s;
                                                                                                                                                                                                                                                                                                  else{
                                                                                                                                                                                                              else{
return s;
                                                                                                                        else{
```

```
StringTokenizer st = new StringTokenizer(date," ");
                                                                                                                                                                                                                                                        int after(int y1, int m1, int d1, int y2, int m2, int d2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           String s=new String(st.nextToken());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.year=0; this.month=0; this.date=0;
                        job_queue.setElementAt(tmp, j);
                                                                                                                            job_queue.setElementAt(earlist, i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  st.hasMoreTokens();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             void getdate(String date){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               return 1;
earlist=step1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if(m1==m2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(d1>d2){
                                                                                                                                                                                                                                                                                                                                                                                                                   if(m1>m2){ .
                                                                                                                                                                                                                                                                                                                                                                                                                                             return 1;
                                                )//end if()
                                                                            //end.for(j)
                                                                                                                                                                                                                                                                                                                                                                                      if(y1==y2){
                                                                                                                                                     \/end for(//i)
                                                                                                                                                                                                                                                                                                             return 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else{
                                                                                                                                                                                                                                                                                     if(y1>y2){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           }//end after
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     return 0;
                                                                                                                                                                                                                                                                                                                                                                  else{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      StepContent step1=(StepContent) job_queue.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  y1=this.year; m1=this.month; d1=this.date;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        y2=this.year; m2=this.month; d2=this.date;
                                                                                                                                                                                                                                                                                                                                      for(int i=0; i<job_queue.size(); i++){
    earlist=(StepContent) job_queue.elementAt(i);</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         y1=this.year; m1=this.month; d1=this.date;
                                                                                                                                                                                                                                                                                                            int y1=0, y2=0, m1=0, m2=0, d1=0, d2=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for(int j=i+1; j<job_queue.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               String dead2=step1.getDeadline();
                                                                                                                                                                                                                                                                                                                                                                                                                   String dead1=earlist.getDeadline();
                                                                                                                                                                                                                                 System.out.println("in sorbydeadline ");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int n=after(y1,m1,d1,y2,m2,d2);
                                                 job_queue.setElementAt(max, i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dead1=step1.getDeadline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         y1=0; m1=0; d1=0;
                                                                                                                                                                                                                                                                                     StepContent earlist, tmp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                y2=0; m2=0; d2=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                getdate(dead1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 y1=0; m1=0; d1=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      getdate(dead2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tmp=earlist;
                                                                                                                                                                                 void sortbydeadline(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getdate(dead1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(n==1){
//end for(j)
                                                                            \//end for(//i)
                                                                                                                               //end sort
```

```
StepContent step1=(StepContent) job_queue.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                y1=this.year; m1=this.month; d1=this.date;
                                                                                                                                                                                                                                                                                                                                                                y2=this.year; m2=this.month; d2=this.date;
                                                      ealist=(StepContent) job_queue.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 min=(StepContent) job_queue.elementAt(i);
                                                                                                                                                     y1=this.year; m1=this.month; d1=this.date;
                                                                                                                                                                                                               for(int j=i+1; j<job_queue.size(); j++){
                                                                                                                                                                                                                                                                          String dead2=step1.getStartTime();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ob_queue.setElementAt(tmp, j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                String deadline1=min.getDeadline();
                                                                                                                                                                                                                                                                                                                                                                                                                         if(after(y1,m1,d1,y2,m2,d2)==1){
                                                                                          String dead1=ealist.getStartTime();
                                for(int i=0; i<job_queue.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        job_queue.setElementAt(ealist, i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for(int i=0; i<job_queue.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                       dead1=step1.getStartTime();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       int y1, y2, m1, m2, d1, d2;
                                                                                                                                                                                                                                                                                                                                  y2=0; m2=0; d2=0;
StepContent ealist, tmp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getdate(dead1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              StepContent min, tmp;
                                                                                                                                                                                                                                                                                                      getdate(dead2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ealist=step1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               //end sortbystarttime
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           int laxity1,laxity2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tmp=ealist;
                                                                                                                          getdate(dead1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       void sortbylaxity(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   //end if()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               //end for(j)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  //end for(//i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            StepContent step1=(StepContent) job_queue.elementAt(j);
                                                                                                                                                 StringTokenizer st1 = new StringTokenizer(d,",");
                                                                                        this.year=Integer.parseInt(st.nextToken());
                                                                                                                                                                                                           String d2=new String(st1.nextToken());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(min.getDuration()>step1.getDuration()){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   min=(StepContent) job_queue.elementAt(i);
                            this.month=getmonthbystring(s);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for(int j=i+1; j<job_queue.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 job_queue.setElementAt(tmp, j);
                                                                                                                                                                                                                                        this.date=Integer.parseInt(d2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for(int i=0; i<job_queue.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    job_queue.setElementAt(min, i);
                                                          String d=st.nextToken();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int y1, y2, m1, m2, d1, d2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            int y1, y2, m1, m2, d1, d2;
                                                                                                                                                                           st1.hasMoreTokens();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              StepContent min, tmp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     void sortbystarttime(){
                                                                                                                                                                                                                                                                                                                                                                                                                       void sortbyduration(){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      min=step1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tmp=min;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         //end if()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           //end for(j)
                                                                                                                                                                                                                                                                                                catch(Exception e){}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                }//end for(//i)
```

```
StepContent step1=(StepContent) job_queue.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(((y-y\_dead1)*360+(m-m\_dead1)*30+(d-d\_dead1))*w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ((y-y_dead2)*360+(m-m_dead2)*30+(d-d_dead2))*w
                                                                                                             StepContent step=(StepContent) job_queue.lastElement();
                                                                                                                                                                                                                                                                                  System.out.println("month= "+m+" date= "+d);
                                                                                                                                                                                                                                                                                                                                                                                                                                 max=(StepContent) job_queue.elementAt(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 String deadline2=step1.getDeadline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for(int j=i+1; j<job_queue.size(); j++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                job_queue.setElementAt(tmp, j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                           String deadline1=max.getDeadline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -max.getDuration()*(1-w))<
                                                                                                                                                                                                                                                                                                                                                                                                    for(int i=0; i<job_queue.size(); i++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -step1.getDuration()*(1-w)))
                                                     System.out.println("in D_E e="+w);
                                                                                                                                           String s=step.getDeadline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int m_dead1=this.month;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   int m_dead2=month;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      int y_dead1=this.year;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int d_dead1=this.date;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getdate(deadline2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int y_dead2=year;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int d_dead2=date;
                                                                                                                                                                                                                                                                                                                                             StepContent max, tmp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      getdate(deadline1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      max=step1;
                                                                                    w=weight.get_w();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tmp=max;
                       sortbydeadline();
                                                                                                                                                                                                                               int m=month;
                                                                                                                                                                                                                                                           int d=date;
                                                                                                                                                                      getdate(s);
                                                                                                                                                                                                     int y=year;
                                                                                                                                                                                                                                                                                                                StepContent step=(StepContent) job_queue.elementAt(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         laxity2=((y1-y2)*360+(m1-m2)*30+(d1-d2))
                                                                                                                                                                                                                                                                                                                                                                                                                                 y1=this.year; m1=this.month; d1=this.date;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               y2=this.year; m2=this.month; d2=this,date;
                                                                                                                                                                                              laxity1=((y1-y2)*360+(m1-m2)*30+(d1-d2))
                           y1=this.year; m1=this.month; d1=this.date;
                                                                                                                                                                    y2=this.year; m2=this.month; d2=this.date;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               String starttime2=step.getStartTime();
                                                                                                                                                                                                                                                                                                                                             String deadline2=step.getDeadline();
                                                                                                                                                                                                                                                                                      for(int j=i+1; j<job_queue.size(); j++){
                                                                                  String starttime1=min.getStartTime();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             job_queue.setElementAt(tmp, j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ob_queue.setElementAt(min, i);
                                                                                                                                                                                                                                                                                                                                                                        getdate(deadline2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      getdate(starttime2);
                                                                                                                                                                                                                                                                                                                                                                                                      y1=0; m1=0; d1=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      y2=0; m2=0; d2=0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if(laxity1>laxity2){
                                                                                                                                             y2=0; m2=0; d2=0;
y1=0; m1=0; d1=0;
                                                                                                               getdate(starttime1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  //sortbyMinD_MinE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         //end sortbylaxity()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         min=step;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tmp=min;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //end if()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         //end for(j)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                //end for(//i)
                                                                                                                                                                                                                               min.getDuration();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        step.getDuration();
```

void sortbyD_E(){

getdate(deadline1);

StepContent step1=(StepContent) job_queue.elementAt(j); (((y_dead-y_dead_step)*365+(m_dead-m_dead_step)*30+(d_dead-dead_step))*w +((y_dead-y_start_step)*365+(m_dead-+((y_start-y_start_max)*365+(m_startif(((y_dead-y_dead_max)*365+(m_deadfor(int j=i+1; j<job_queue.size(); j++){ $m_start_max)*30+(d_start_d_start_max))*(1-w))<$ $m_start_step)*30+(d_dead-d_start_step))*(1-w))$ String s6=step1.getStartTime(); String s5=step1.getDeadline(); m_dead_max)*30+(d_dead-d_dead_max))*w String s4=max.getStartTime(); int m_dead_step=month; int m_start_step=month; int m_dead_max=month; int m_start_max=month; int y_dead_stpp=year; int d_dead_step=date; int d_start_step=date; int y_start_step=year; int y_dead_max=year; int d_dead_max=date; int d_start_max=date; int y_start_max=year; max=step1; tmp=max; getdate(s6); getdate(s5); getdate(s4); getdate(s3); StepContent step=(StepContent) job_queue.lastElement(); max=(StepContent) job_queue.elementAt(i); for(int i=0; i<job_queue.size(); i++){ //int y=job.get_deadline().getYear(); System.out.println("in D_S e="+w); job_queue.setElementAt(max, i); String s3=max.getDeadline(); String s2=step.getStartTime(); String s1=step.getDeadline(); StepContent max, tmp; int m_dead=month; int m_start=month; w=weight.get_w(); int y_dead=year; int d_dead=date; sortbydeadline(); int d_start=date; int y_start=year; void sortbyD_S(){ }//end if() //end for(j) }//end for(//i) getdate(s1); getdate(s2);

```
public void itemStateChanged(java.awt.event.ItemEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              void JComboBox1_itemStateChanged(java.awt.event.ItemEvent
                                                               JScrollPane2_focusGained(event);
                                                                                                                            JTable 1_focusGained(event);
                                                                                                                                                                                                                                                           class SymItem implements java.awt.event.ItemListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         System.out.println("high priority first");
                                                                                                                                                                                                                                                                                                                                                                                                                    Object object = event.getSource();
  Object object = event.getSource();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                System.out.println("in jombobox performence");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if( event.getStateChange() == event.SELECTED ){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if(str.equals("High Priority First")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           String str=(String) event.getItem();
                                                                                                                                                                                                                                                                                                                                                                                                                                                     if (object == JComboBox1)
                              if (object == JScrollPane2)
                                                                                            else if (object == JTable1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JComboBox1_itemStateChanged(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // to do: code goes here.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sortbypriority();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //new Getdat();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         datavalu();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else{
                                                                                                                                                                                                                                                                                                                                                         event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             void JButton5_actionPerformed(java.awt.event.ActionEvent event)
                                                                                                                                                                                                                                                                                                                                                                                      public void actionPerformed(java.awt.event.ActionEvent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JButton5_actionPerformed(event);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       public void focusGained(java.awt.event.FocusEvent
                                                                                                                                                                                                                                                                                                                        class SymAction implements java.awt.event.ActionListener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        class SymFocus extends java.awt.event.FocusAdapter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Object object = event.getSource();
job_queue.setElementAt(tmp, j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (object == JButton5)
                                                                                                                                                         job_queue.setElementAt(max, i);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // to do: code goes here.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             this.setVisible(false);
                                                           () J//end if()
                                                                                            //end for(j)
                                                                                                                                                                                          }//end for(//i)
                                                                                                                                                                                                                                                                                                                                                                                                                       event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          event)
```

```
void JScrollPane2_focusGained(java.awt.event.FocusEvent event)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            void JTable I_focusGained(java.awt.event.FocusEvent event)
 System.out.println("D_S"); (new JDialog_weit(this, weight,
                                                                         //sortbyD_S();
                                                                                                                                                                                                                                                                                                                                                                                                      // to do: code goes here.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // to do: code goes here.
                                                  2)).setVisible(true);
                                                                                                                                                                                                                                                                                                                            if(str.equals("Minimum Earliest Start Time First
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(str.equals("Min_D*w + Min_E*(1-
if(str.equals("Minimum Deadline First (Min_D)")){
                                                                                                                                                if(str.equals("Minimum Estimated Duration First
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(str.equals("Min_D*w + Min_S*(1-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(str.equals("Minimum Laxity First
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           System.out.println("D_E"); (new JDialog_weit(this, weight,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   System.out.println("min_l");
                                                                                                                                                                                                                                                                                                                                                                           System.out.println("startime");
                                                                                                                                                                                                 System.out.println("duration");
                         System.out.println("deadline"); sortbydeadline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sortbylaxity(); datavalu();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     //sortbyD_E();
                                                                                                                                                                                                                                                                                                                                                                                                    sortbystarttime();
                                                                                                                                                                                                                          sortbyduration();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     else{
                                                                                                                                                                                                                                                                                                                                                                                                                             datavalu();
                                                                                                                                                                                                                                                   datavalu();
                                                                        datavalu();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1)).setVisible(true);
                                                                                                                                                                                                                                                                                                                                                   (Min_S)" )){
                                                                                                                                                                        (Min_E)")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (Min_L)")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    w)")){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    w)")){
```

```
public class Weight implements Serializable (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public void put_w(double w1){ w=w1;}
                              public int get_grade(){ return grade; }
 public int get_id(){ return personid; }
                                                                                                                                                                                                                                                                                                                                                                                                                                                     public Weight(){ w=0.5; i=5;}
public Weight(double w1){    w=w1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            public double get_w(){return w;}
public int get_i(){return i;}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public void put_i(int i1){i=i1;}
                                                                                                                                                                                                                                                                                                            import java.io.Serializable;
                                                                                                                                                                                                                            package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                private double w;
                                                                                                                                                                                                                                                                                   import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                          private int i;
                                                                                                                                                                                                                                                        public class Predecessor implements Serializable {
                                                                                                                                                                                                                                                                                                              public Predecessor(){predec=new Vector();}
                                                                                                                                                                                                                                                                                                                                       public Vector get_predec(){ return predec;}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public class Result implements Serializable (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                public Result(int id, int grade1){
                                                                                                                                            import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            import com.sun.java.swing.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              import java.io.Serializable;
                                                                                                                                                                   import java.io.Serializable;
                                                                                                                                                                                                                                                                                 private Vector predec;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   import java.awt.event.*;
                                                                                                                 import java.awt.event.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          private int personid;
package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       package JobSchedule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         public Result() {}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       private int grade;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       grade=grade1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         import java.awt.*;
                                                                                import java.awt.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            personid=id;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              import java.util. *;
                                                        import java.util.*;
```

```
package JobSchedule;
import java.util.*;
import java.awt.*;
import java.awt.event.*;
import com.sun.java.swing.*;
import com.sun.java.swing.*;
import java.io.Serializable;
public class Work_schedul implements Serializable{
   private int personid;
   private Vector schedul;
   public Work_schedul(int id){
        personid=id;
        schedul=new Vector();
   }

   public Work_schedul() { }
   public int get_id() { return personid; }
   public Vector get_schedul() { return schedul; }
}
```

LIST OF REFERENCES

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